EXHIBIT E

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As filed with the Securities and Exchange Commission on August 19, 2019.
Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT

UNDER
THE SECURITIES ACT OF 1933

10x Genomics, Inc.

(Exact Name of Registrant as Specified in Its Charter)

Delaware	3826	45-5614458
(State or Other Jurisdiction of Incorporation or Organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

6230 Stoneridge Mall Road
Pleasanton, California 94588
(925) 401-7300
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Serge Saxonov
Chief Executive Officer
10x Genomics, Inc.
6230 Stoneridge Mall Road
Pleasanton, California 94588
(925) 401-7300
(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent For Service)

Copies to:

Kevin P. Kennedy	Eric S. Whitaker	Charles S. Kim
Simpson Thacher & Bartlett LLP	Randy Wu	David Peinsipp
2475 Hanover Street	James Bryant	Kristin VanderPas
Palo Alto, California 94304	10x Genomics, Inc.	Cooley LLP
(650) 251-5000	6230 Stoneridge Mall Road	4401 Eastgate Mall
	Pleasanton, California 94588	San Diego, California 92121
	(925) 401-7300	(858) 550-6000

Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this Registration Statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer", "accelerated filer", "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☐
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price(1)(2)	Amount of Registration Fee
Class A Common stock, par value $0.00001 per share	$100,000,000	$12,120

(1) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase.
(2) Estimated solely for the purpose of computing the amount of the registration fee pursuant to Rule 457(o) under the Securities Act of 1933.

The registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, or until the registration statement shall become effective on such date as the Securities and Exchange Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities and it is not soliciting an offer to buy these securities in any jurisdiction where the offer or sale is not permitted.

Subject to Completion, dated August 19, 2019

Preliminary prospectus

shares

10x GENOMICS

Class A common stock

This is an initial public offering of shares of Class A common stock by 10x Genomics, Inc. We are offering shares of our Class A common stock to be sold in the offering. The initial public offering price is expected to be between $ and $ per share.

We have two classes of common stock, Class A common stock and Class B common stock. The rights of the holders of Class A common stock and Class B common stock are different with respect to voting, conversion and transfer rights. Each share of Class A common stock is entitled to one vote per share. Each share of Class B common stock is entitled to ten votes per share and is convertible at any time into one share of Class A common stock. Following this offering, outstanding shares of Class B common stock will represent approximately % of the voting power of our outstanding capital stock. This means that, for the foreseeable future, investors in this offering and holders of our Class A common stock in the future will not have a meaningful voice in our corporate affairs.

Prior to this offering, there has been no public market for our Class A common stock. We have applied to list our Class A common stock on the Nasdaq Global Select Market under the symbol “TXG”.

We are an “emerging growth company” as defined under the federal securities laws and, as such, have elected to comply with certain reduced public company reporting requirements.

	Per share	Total
Initial public offering price	$	$
Underwriting discounts and commissions(1)	$	$
Proceeds to 10x Genomics, Inc., before expenses	$	$

(1) See the section titled “*Underwriting*” for a description of the compensation payable to the underwriters.

We have granted the underwriters an option for a period of 30 days to purchase up to additional shares of Class A common stock at the initial public offering price less the underwriting discounts and commissions.

Investing in our Class A common stock involves a high degree of risk. See the section titled “*Risk factors*” beginning on page 15.

Neither the Securities and Exchange Commission nor any other state securities commission has approved or disapproved of these securities or passed on the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares to purchasers on or about , 2019.

J.P. Morgan **Goldman Sachs & Co. LLC** **BofA Merrill Lynch**

Cowen

, 2019

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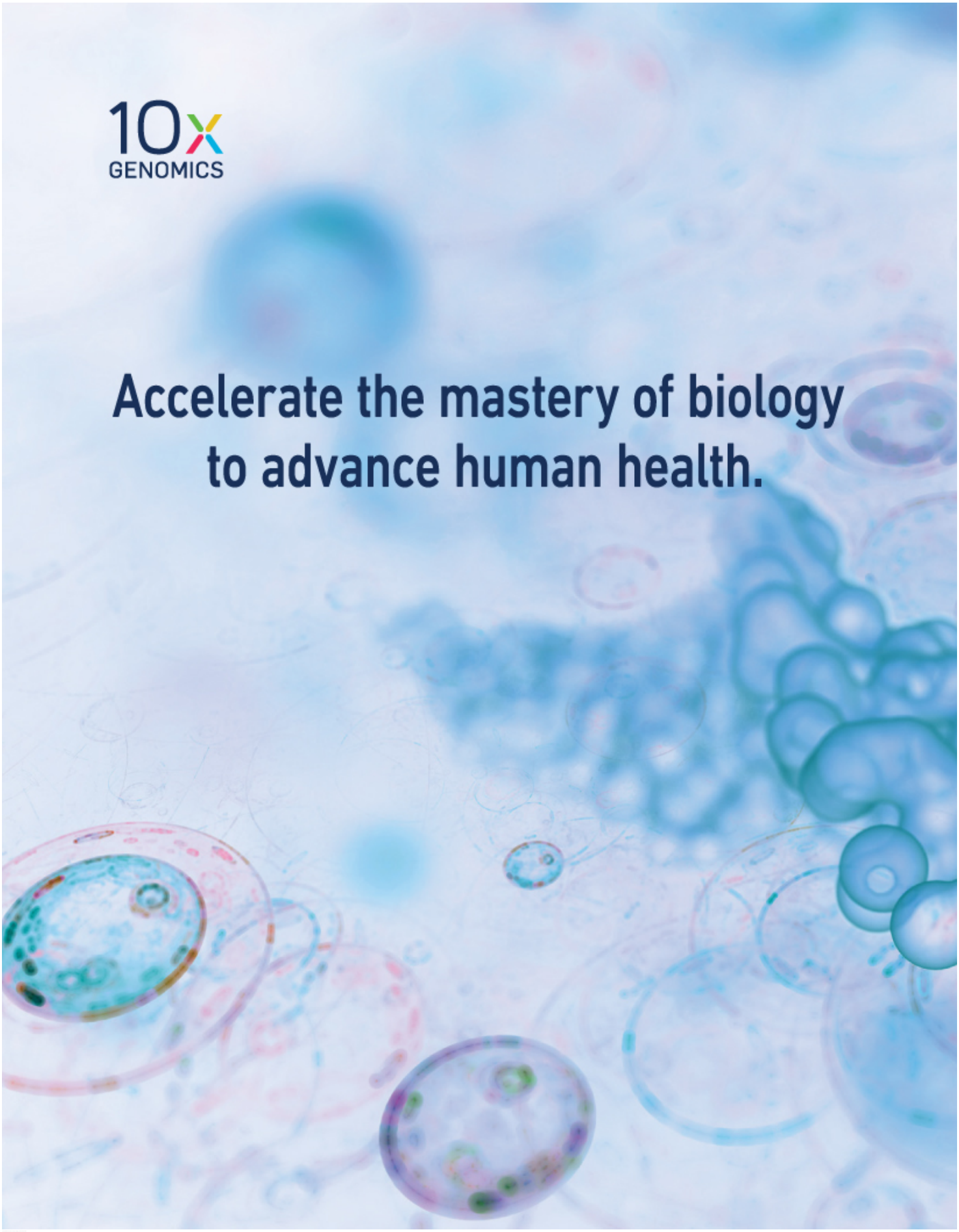
10X
GENOMICS
Accelerate the mastery of biology
to advance human health.

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In this prospectus, "10x", "10x Genomics", the "Company", "we", "us" and "our" refer to 10x Genomics, Inc. and, as appropriate, its consolidated subsidiaries, and references to our "common stock" include our Class A common stock and Class B common stock. We and the underwriters have not authorized anyone to provide any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses prepared by us or on our behalf. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may provide you. We are offering to sell, and seeking offers to buy, shares of Class A common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of the Class A common stock. Our business, financial condition, results of operations and future growth prospects may have changed since that date.

"10X GENOMICS", "10x", "10X", the "10x" and "10X" logos, "Chromium", "Visium", "Feature Barcoding", "Chromium Connect", "GEM", "Next GEM" and other trade names, trademarks or service marks of 10x appearing in this prospectus are the property of 10x Genomics. For ease of reference, the trademarks, trade names and service marks used in this prospectus are used without the ™ and ® symbols, but that does not mean that we will not assert, to the full extent permitted by law, our full rights and the rights of our licensors over our

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trademarks. Other trademarks and trade names appearing in this prospectus are the property of their respective holders.

Through and including , 2019 (the 25th day after the date of this prospectus), all dealers that effect transactions in these securities, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to the dealers' obligation to deliver a prospectus when acting as underwriters and with respect to their unsold allotments or subscriptions.

For investors outside of the United States: We have not, and the underwriters have not, done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of Class A common stock and the distribution of this prospectus outside of the United States.

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Prospectus summary

This summary highlights information contained elsewhere in this prospectus. This summary may not contain all of the information that you should consider before deciding to invest in our Class A common stock. You should read this entire prospectus carefully, including the sections titled "Risk factors", "Management's discussion and analysis of financial condition and results of operations" and "Business" and our consolidated financial statements and related notes included elsewhere in this prospectus before making an investment decision.

10x Genomics, Inc.

Mission

Our mission is to accelerate the mastery of biology to advance human health.

Overview

We are a life science technology company building products to interrogate, understand and master biology. Our integrated solutions include instruments, consumables and software for analyzing biological systems at a resolution and scale that matches the complexity of biology. We have built deep expertise across diverse disciplines including chemistry, biology, hardware and software. Innovations in all of these areas have enabled our rapidly expanding suite of products, which allow our customers to interrogate biological systems at previously inaccessible resolution and scale. Our products have enabled researchers to make fundamental discoveries across multiple areas of biology, including oncology, immunology and neuroscience, and have helped empower the single cell revolution hailed by *Science* magazine as the 2018 'Breakthrough of the Year'. Since launching our first product in mid-2015 through June 30, 2019, we have sold 1,284 instruments to researchers around the world, including 93 of the top 100 global research institutions by publications, and 13 of the top 15 global pharmaceutical companies by 2018 revenue. We believe that this represents the very beginning of our penetration into multiple large markets. We expect that 10x will power a "Century of Biology", in which many of humanity's most pressing health challenges will be solved by precision diagnostics, targeted therapies and cures to currently intractable diseases.

The "10x" in our name refers to our focus on opportunities with the greatest potential for exponential advances and impact. We believe that the scientific and medical community currently understands only a tiny fraction of the full complexity of biology. The key to advancing human health lies in accelerating this understanding. The human body consists of over 40 trillion cells, each with a genome of 3 billion DNA base pairs and a unique epigenetic program regulating the transcription of tens of thousands of different RNAs, which are then translated into tens of thousands of different proteins. Progress in the life sciences will require the ability to measure and to experiment on biological systems at fundamental resolutions and massive scales, which are inaccessible with existing technologies. We believe that our technologies overcome these limitations, unlocking fundamental biological insights essential for advancing human health.

Resolution and scale are the imperatives underlying our technologies and products. Our Chromium and recently announced Visium product lines provide this resolution and scale along distinct but complementary dimensions of biology. Our Chromium products enable high throughput analysis of individual biological components, such as up to millions of single cells. They use our precisely engineered reagent delivery system to divide a sample into individual components in up to a million or more partitions, enabling large numbers of parallel micro-reactions. In this manner, a large population of cells can be segregated into partitions and analyzed on a cell by cell basis. Our Visium products, the first of which we expect to launch in late 2019, will enable analysis of

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biological molecules within their spatial context, providing the locations of analytes that give insight into higher order biological structure and function. Our Visium products will use high density DNA arrays with DNA sequences that encode the physical locations of biological analytes within a sample, such as a tissue section. Our products utilize our sensitive and robust molecular assays to convert biological analytes into detectable signals, enabling researchers to obtain vast amounts of information about diverse biological analytes together with their single cell and spatial context. Finally, we provide highly sophisticated and scalable software for analyzing the raw data researchers generate and presenting it in a form that is readily understood by biologists.

Our product portfolio consists of multiple integrated solutions that include instruments, consumables and software. These solutions guide customers through the workflow from sample preparation to next-generation sequencing to subsequent analysis and visualization. Our products are compatible with third-party sequencers that are commonly available in research settings. Each of our solutions are designed to interrogate a major class of biological information that is impactful to researchers:

- Our single cell solutions, all of which run on our Chromium instruments, include:
    - Single Cell Gene Expression solution for measuring gene activity on a cell-by-cell basis;
    - Single Cell Immune Profiling solution for measuring the activity of immune cells and their targets;
    - Single Cell ATAC solution for measuring epigenetics, including the physical organization of DNA; and
    - Single Cell CNV solution for measuring cellular heterogeneity through DNA changes such as copy number variation.
- Our Visium solution will measure the spatial gene expression patterns across a tissue sample.

Our Feature Barcoding technology, which is currently compatible with our Single Cell Gene Expression and Immune Profiling solutions, allows researchers to simultaneously measure multiple analytes, such as protein and RNA, within the same set of cells or tissues.

As of June 30, 2019, we employed a commercial team of over 190 employees, many of whom hold Ph.D. degrees, who help drive adoption of our products and support our vision. We prioritize creating a superior user experience from pre-sales to onboarding through the generation of novel publishable discoveries, which drive awareness and adoption of our products. We have a scalable, multi-channel commercial infrastructure including a direct sales force in North America and certain regions of Europe and distribution partners in Asia, certain regions of Europe, South America, the Middle East and Africa that drives our customer growth. This is supplemented with an extensive and highly specialized customer service infrastructure with Ph.D.-level specialists. We currently have customers in approximately 40 countries.

As of June 30, 2019, worldwide we owned or exclusively licensed over 175 issued or allowed patents and 470 pending patent applications. We also license additional patents on a non-exclusive and/or territory restricted basis. Our intellectual property portfolio includes foundational patents related to single cell analysis, epigenomics, spatial analysis and multi-omics.

Our revenue was $71.1 million and $146.3 million for 2017 and 2018, respectively, representing an annual growth rate of 106%, and $59.2 million and $109.4 million for the six months ended June 30, 2018 and 2019, respectively, representing an annual growth rate of 85%. We generated net losses of $18.8 million and $112.5 million for 2017 and 2018. Our 2018 net loss resulted substantially from charges of $62.4 million associated with intellectual property acquisitions for research and development in addition to the litigation contingency accrual of $38.0 million which was recorded in the fourth quarter of 2018. We generated net losses of $21.6 million and $14.5 million for the six months ended June 30, 2018 and 2019, respectively. The $14.5 million net loss included a $15.9 million accrual for estimated royalties related to ongoing litigation.

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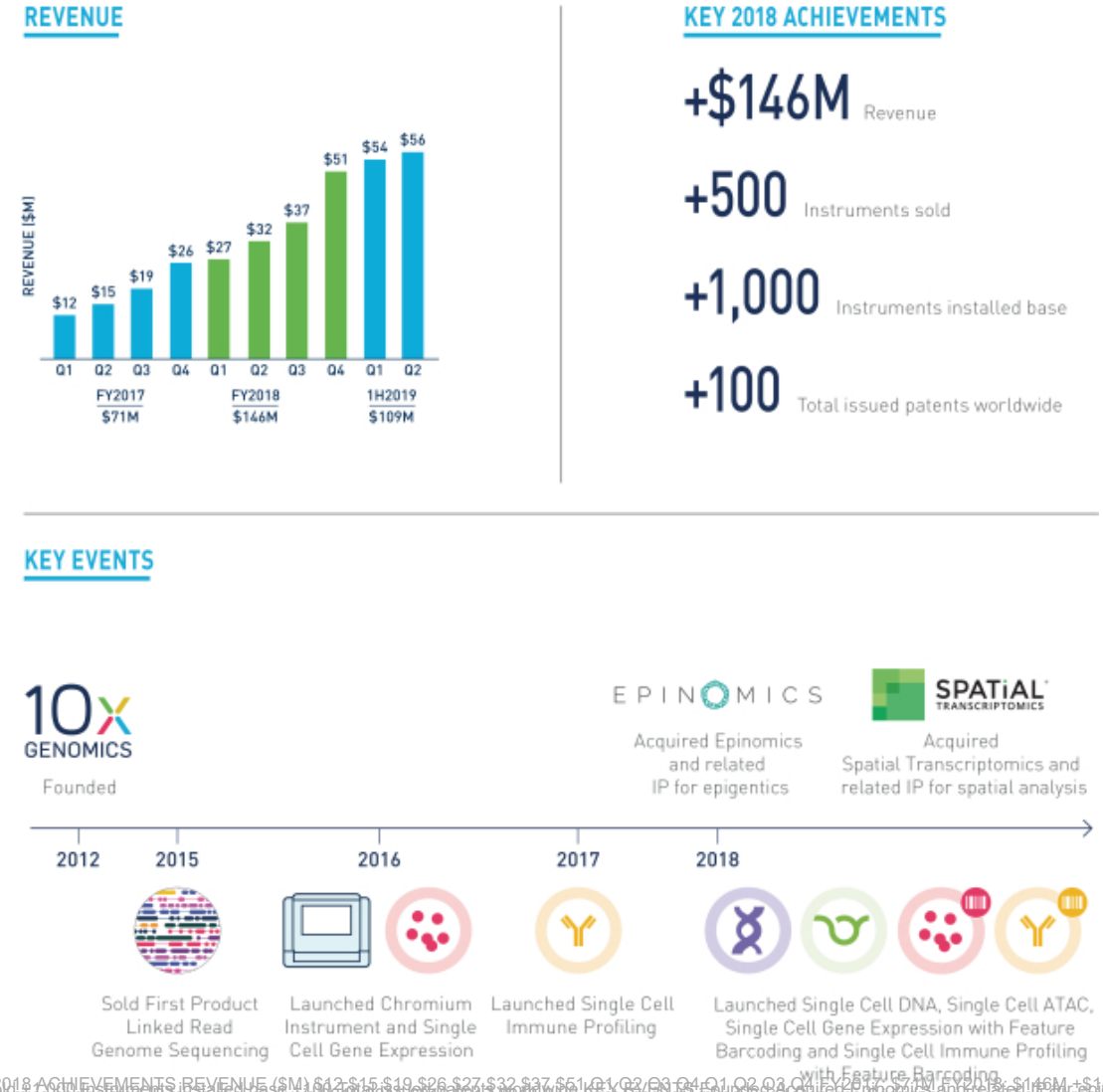

Directions in Genomics

Biology is staggeringly complex. The cell is the basic, fundamental organizational unit of all biological organisms. A human being starts from a single cell, which divides into over 40 trillion cells to create the tissues that enable all necessary functions in the human body. Within each of these trillions of cells exists a distinct genome, epigenome, transcriptome and proteome, which together collectively constitute the rich architecture of biology. Genomics is a broad, highly-interdisciplinary field that studies this architecture at a system-wide level.

The Human Genome Project, which was completed in 2003, and subsequent genomics research have been foundational in enabling new research and clinical applications. However, we believe that much of the promise

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of genomics remains unfulfilled due to the tremendous underlying complexity of biology, of which the scientific and medical community currently understands only a tiny fraction. We believe technologies that enable researchers to measure the full complexity of biology are needed to understand how cell-to-cell variations in genomes, epigenomes, transcriptomes and proteomes give rise to function or dysfunction. To accomplish this, we believe researchers need to characterize every cell type in every tissue in the human body at a full molecular and cellular level, including how cells are spatially arranged. Technologies are also needed for moving beyond the cataloguing of biological complexity and into performing experiments to understand the impact of active changes to biological systems.

This presents an enormous challenge because of the limited capabilities of existing tools for accessing biology at the molecular and cellular level. Some of these limitations are:

- Average, or “bulk”, measurements obscure underlying differences between different biological units, such as individual cells;
- Low throughput prevents requisite sampling of the underlying complexity—for example, when only a few hundred cells can be evaluated at a time;
- Limited number of biological analytes are interrogated, giving a myopic view of only a few biological processes;
- Limited ability for multi-omic interrogation;
- Inefficient use of sample to generate a signal of sufficient strength to analyze the biological molecules of interest; and
- Inadequate bioinformatics and software tools.

We believe technologies that address these limitations will serve large and unmet market needs by providing a better understanding of molecular and cellular function, the origin of disease and how to improve treatment.

Our solutions

Our solutions allow researchers to interrogate, understand and master biological systems at a resolution and scale commensurate with the complexity of biology, overcoming the limitations of existing tools.

Our Chromium platform, recently announced Visium platform, molecular assays and software constitute the building blocks of our integrated solutions. These shared building blocks allow us to rapidly build and improve our solutions:

- ***Our Chromium platform*** enables high-throughput analysis of individual biological components, such as up to millions of single cells.
- ***Our Visium platform*** is being designed to identify where biological components are located and how they are arranged with respect to each other, otherwise referred to as “spatial analysis”.
- ***Our molecular assays*** are used with our Chromium platform, and with our planned Visium platform, to provide sensitive and robust biochemistries that convert minute amounts of biological analytes into detectable signals.
- ***Our software*** transforms large amounts of raw data into usable results, giving researchers user-friendly tools to dynamically explore these results.

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To date, more than 500 peer-reviewed articles have been published based on data generated using our products. More than 90 of these articles were published in three of the most highly-regarded journals: *Cell*, *Nature* and *Science*.

Our market opportunity

We believe our solutions, which enable a comprehensive view of biology, target numerous market opportunities across the more than $50 billion global life sciences research tools market. We view much of this total market opportunity as ultimately accessible to us due to our ability to answer a broad diversity of biological questions. Based on the capabilities of our current solutions, and focusing solely on cases where our current solutions offer alternative or complementary approaches to existing tools, we believe, based on our internal estimates, we could access approximately $13 billion of the global life sciences research tools market. We believe we can further drive growth across our current and adjacent markets by improving, or enabling new uses and applications of, existing tools and technologies, as our solutions allow researchers to answer questions that may be impractical or impossible to address using other products.

Our competitive strengths

We believe our continued growth will be driven by the following competitive strengths:

- Our position as a leader in a large and growing market;
- Our proprietary technologies;
- Our rigorous product development processes and scalable infrastructure;
- Our customer experience and broad commercial reach; and
- Our experienced multidisciplinary team.

Our growth strategy

Our growth strategy includes the following key elements:

- Develop critical enabling technologies;
- Expand the installed base of our Chromium instruments;
- Strengthen use and adoption of our consumables;
- Identify the most relevant technologies, create or acquire such technologies and develop them into new products; and
- Promote our platforms as the standard for single cell and spatial analysis.

Risk factors

Investing in our Class A common stock involves risk. You should carefully consider all the information in this prospectus prior to investing in our Class A common stock. These risks are discussed more fully in the section titled "*Risk factors*" immediately following this prospectus summary.

Risks related to our business and industry

Risks and uncertainties related to our business and industry include, but are not limited to, the following:

- We have incurred significant losses since inception, we expect to incur losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability;

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- The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer;
- Our business depends significantly on the success of our Next GEM microfluidic chip;
- We are significantly dependent upon revenue generated from the sale of our Chromium solutions, and in particular our Single Cell Gene Expression solutions;
- Our business currently depends significantly on research and development spending by academic institutions, a reduction in which could limit demand for our products and adversely affect our business and operating results;
- Our failure to effectively manage product transitions or accurately forecast customer demand could result in excess or obsolete inventory and resulting charges;
- Our future success is dependent upon our ability to increase penetration in our existing markets;
- We may not be able to develop new products, enhance the capabilities of our existing products to keep pace with rapidly changing technology and customer requirements or successfully manage the transition to new product offerings, any of which could have a material adverse effect on our business and operating results;
- If our existing and new products fail to achieve and sustain sufficient scientific acceptance, we will not generate expected revenue and our prospects may be harmed; and
- the other risk factors set forth in the section titled "*Risk factors—Risks related to our business and industry*".

Risks related to litigation and our intellectual property

We are currently involved in litigation matters related to substantially all of our products, the loss of any of which could have a material adverse effect on our business, operations, financial results and reputation. Furthermore, parties making claims against us have obtained and may in the future be able to obtain injunctive or other relief, which effectively could block our ability to further develop, commercialize, market or sell products or services and could result in the award of substantial damages against us. In November 2018, a jury concluded that our Chromium instruments operating our Gel bead in Emulsion microfluidic chips ("GEM microfluidic chips") and associated consumables infringed certain of Bio-Rad Laboratories, Inc.'s ("Bio-Rad") patents and that the infringement was willful. The Court entered final judgment in August 2019 with damages in the amount of approximately $35 million. In the fourth quarter of 2018, we began recording an accrual for estimated royalties as cost of revenue. This accrual is based on an estimated royalty rate of 15% of worldwide sales of our Chromium instruments operating our GEM microfluidic chips and associated consumables. As of June 30, 2019, we had accrued a total of $55.3 million relating to this matter which includes the $35 million judgment and our estimated 15% royalty for sales through that date.

The Court also granted Bio-Rad a permanent injunction against our GEM microfluidic chips and associated consumables that were found to infringe the Bio-Rad patents, which have historically constituted substantially all of our product sales. However, under the injunction, we are permitted to continue to sell our GEM microfluidic chips and associated consumables for use with our historical installed base of instruments provided that we pay a royalty of 15% into escrow on our net revenue related to such sales. We have appealed the injunction to the Federal Circuit and expect that it will not take effect until the Federal Circuit rules on our request for a stay of the injunction.

We have dedicated significant resources to designing and manufacturing our new microfluidic chips (our "Next GEM microfluidic chips") which use fundamentally different physics from our GEM microfluidic chips. Neither

the jury verdict nor the injunction relate to our Next GEM microfluidic chips and associated consumables which we launched in May 2019 for three of our single cell solutions — Single Cell Gene Expression, Single Cell Immune Profiling and Single Cell ATAC. We currently expect that, by the end of the third quarter of 2019, all Chromium instruments that we sell will operate exclusively with our Next GEM solutions and that our Chromium products utilizing our Next GEM microfluidic chips will constitute substantially all of our Chromium sales by the end of 2020.

Although our Next GEM microfluidic chips were designed to replace our GEM microfluidic chips, we cannot assure you that we will be able to make our Next GEM microfluidic chip work with all of our solutions, that our Next GEM microfluidic chip will allow our customers to maintain the level of performance or quality of our GEM microfluidic chip, that our Next GEM microfluidic chip will replace the sales of our GEM microfluidic chip or that we will be able to manufacture our Next GEM microfluidic chips in sufficient volumes in a timely fashion. Our Next GEM microfluidic chips may be subject to future claims of infringement by Bio-Rad or others and are currently the subject of the litigation described below. For additional information, see "*Risk factors—Risks related to litigation and our intellectual property*".

In addition, unless the injunction relating to our GEM microfluidic chips is stayed, we will be unable to sell our Single Cell CNV and Linked-Read solutions for use on new instruments unless and until we develop a Next GEM microfluidic chip for such solutions. Though these solutions have not significantly contributed to our revenue to date, our Single Cell CNV solution, for example, has proved crucial in understanding how cancers evolve and providing researchers with valuable insights into cancer treatments.

As we enter new markets or introduce new products, we expect that competitors will likely claim that our products infringe their intellectual property rights. Our success depends in part on our ability to defend ourselves against such claims and maintain the validity of our patents and other proprietary rights. Risks and uncertainties relating to litigation and intellectual property include, but are not limited to, the following:

- We are involved in significant litigation which has consumed significant resources and management time, and adverse resolution of these lawsuits could require us to pay significant damages and prevent us from selling our products, which would severely adversely impact our business, financial condition or results of operations;
- We are involved in lawsuits to protect, enforce or defend our patents and other intellectual property rights, which are expensive, time consuming and could ultimately be unsuccessful; and
- the other risk factors set forth in the section titled "*Risk factors—Risks related to litigation and our intellectual property*".

Risks related to this offering and ownership of our Class A common stock

- The multi-class structure of our common stock will have the effect of concentrating voting control with those stockholders who held our capital stock prior to the completion of this offering, and it may depress the trading price of our Class A common stock; and
- the other risk factors set forth in the section titled "*Risk factors—Risks related to this offering and ownership of our Class A common stock*".

Corporate information

We were incorporated in the State of Delaware on July 2, 2012 under the name Avante Biosystems, Inc. We changed our name to 10X Technologies, Inc. in September 2012 and to 10x Genomics, Inc. in November 2014.

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Our principal executive offices are located at 6230 Stoneridge Mall Road, Pleasanton, California 94588, and our telephone number is (925) 401-7300. Our website is https://www.10xgenomics.com. Neither our website nor the information contained in or accessible from our website is incorporated into this prospectus or the registration statement of which it forms a part, and investors should not rely on such information in deciding whether to invest in our Class A common stock.

Implications of being an emerging growth company

We qualify as an "emerging growth company" as defined in the Jumpstart Our Business Startups Act of 2012 (the "JOBS Act"). For so long as we remain an emerging growth company, we are permitted and currently intend to rely on the following provisions of the JOBS Act that contain exceptions from disclosure and other requirements that otherwise are applicable to companies that conduct initial public offerings and file periodic reports with the Securities and Exchange Commission (the "SEC"). These provisions include, but are not limited to:

- being permitted to present only two years of audited financial statements in this prospectus and only two years of related "*Management's discussion and analysis of financial condition and results of operations*" in our periodic reports and registration statements, including this prospectus;
- not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act of 2002, as amended ("SOX");
- reduced disclosure obligations regarding executive compensation in our periodic reports, proxy statements and registration statements, including in this prospectus; and
- exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved.

We will remain an emerging growth company until:

- the first to occur of the last day of the fiscal year (i) that follows the fifth anniversary of the completion of this offering, (ii) in which we have total annual gross revenue of at least $1.07 billion or (iii) in which we are deemed to be a "large accelerated filer", as defined in the Securities Exchange Act of 1934, as amended (the "Exchange Act"); or
- if it occurs before any of the foregoing dates, the date on which we have issued more than $1 billion in non-convertible debt over a three-year period.

We have elected to take advantage of certain of the reduced disclosure obligations in this prospectus and may elect to take advantage of other reduced reporting requirements in our future filings with the SEC. As a result, the information that we provide to our stockholders may be different than what you might receive from other public reporting companies in which you hold equity interests.

We have elected to avail ourselves of the provision of the JOBS Act that permits emerging growth companies to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. As a result, we will not be subject to new or revised accounting standards at the same time as other public companies that are not emerging growth companies.

For additional information, see the section titled "*Risk factors—Risks related to this offering and ownership of our Class A common stock—We are an "emerging growth company" and the reduced disclosure requirements applicable to emerging growth companies may make our Class A common stock less attractive to investors*".

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The offering

Class A common stock offered by us	shares.
Underwriters' option to purchase additional shares of Class A common stock from us	The underwriters have been granted an option to purchase up to additional shares of Class A common stock from us at any time within 30 days from the date of this prospectus.
Class A common stock outstanding immediately after giving effect to this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full).
Class B common stock outstanding immediately after giving effect to this offering	shares.
Total Class A common stock and Class B common stock outstanding immediately after giving effect to this offering	shares.
Use of proceeds	We estimate that the net proceeds to us from this offering, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, will be approximately $ million (or approximately $ million if the underwriters exercise their option to purchase additional shares in full), assuming an initial public offering price of $ per share, which is the midpoint of price range set forth on the cover page of this prospectus. Each $1.00 increase or decrease in the initial public offering price per share would increase or decrease, as applicable, our net proceeds, after deducting estimated underwriting discounts and commissions, by $ million (assuming that the number of shares offered by us remains the same and no exercise by the underwriters of their option to purchase additional shares). Similarly, each increase or decrease of 1.0 million shares in the number of shares of our Class A common stock offered by us would increase or decrease, as applicable, our net proceeds by $ million, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions. We intend to use the net proceeds from this offering for general corporate purposes, including working capital,

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	operating expenses and capital expenditures. Additionally, we may use a portion of the net proceeds we receive from this offering to acquire businesses, products or technologies. However, we do not have agreements or commitments for any material acquisitions at this time. See the section titled "*Use of proceeds*".
Voting rights	Each share of our Class A common stock entitles its holder to one vote on all matters to be voted on by stockholders generally. Each share of our Class B common stock entitles its holder to ten votes on all matters to be voted on by stockholders generally. Holders of our Class A common stock and Class B common stock will generally vote together as a single class, unless otherwise required by law or our amended and restated certificate of incorporation. Additionally, our executive officers, directors and holders of 5% or more of our common stock will hold, in the aggregate, approximately % of the voting power of our outstanding capital stock following this offering. See the sections titled "*Principal stockholders*" and "*Description of capital stock*" for additional information.
Dividend policy	We do not intend to pay dividends on our Class A common stock in the foreseeable future. See the section titled "*Dividend policy*".
Risk factors	See the section titled "*Risk factors*" for a discussion of risks you should carefully consider before investing in our Class A common stock.
Proposed Nasdaq trading symbol	"TXG"

Unless we specifically state otherwise or the context otherwise requires, the number of shares of our Class A common stock and Class B common stock that will be outstanding after this offering is based on 8,095,382 shares of our Class A common stock and 75,754,278 shares of our Class B common stock (including our Convertible Preferred Stock on an as-converted basis) outstanding as of June 30, 2019 and excludes:

- 15,634,182 shares of Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2019, at a weighted-average exercise price of $3.61 per share;
- 266,099 shares of Class of A common stock issuable upon exercise of warrants outstanding as of June 30, 2019, at a weighted-average exercise price of $1.17 per share;
- 842,475 shares of Class A common stock issuable upon exercise of stock options granted after June 30, 2019, at a weighted-average exercise price of $30.00 per share; and

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- 11,000,000 shares of Class A common stock to be reserved and available for future issuance under our 10x Genomics, Inc. 2019 Omnibus Incentive Plan (the "Omnibus Incentive Plan"), which will become effective in connection with this offering, as more fully described in the section titled "*Executive compensation—Equity incentive plans*", including:
  - 1,323,858 shares of Class A common stock reserved for future grants under our 10x Genomics, Inc. Amended and Restated 2012 Stock Plan (the "2012 Stock Plan"), as of June 30, 2019, which will be added to the shares reserved under our Omnibus Incentive Plan; plus
  - any shares of Class A common stock issuable upon exercise of stock options outstanding under the 2012 Stock Plan that will be added to our Omnibus Incentive Plan available reserve upon expiration or termination of such stock options; plus
  - automatic increases in the number of shares of Class A common stock reserved for future grants pursuant to our Omnibus Incentive Plan; plus
  - 2,000,000 shares of Class A common stock to be reserved and available for future issuance under our 10x Genomics, Inc. 2019 Employee Stock Purchase Plan (the "ESPP"), which will become effective in connection with this offering, as well as automatic increases in the number of shares of Class A common stock reserved for future issuance under the ESPP.

Unless we specifically state otherwise or the context otherwise requires, this prospectus reflects and assumes the following:

- no exercise of the outstanding stock options and warrants described above;
- outstanding shares include 198,250 shares of Class A common stock issued upon the early exercise of stock options and subject to repurchase as of June 30, 2019;
- no exercise by the underwriters of their option to purchase additional shares of our Class A common stock in this offering;
- the filing and effectiveness of our amended and restated certificate of incorporation, to be in effect at the closing of this offering;
- the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock (including outstanding stock options and warrants to purchase such shares) into Class A common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*"; and
- the automatic conversion of all shares of our Convertible Preferred Stock outstanding as of June 30, 2019 into 67,704,278 shares of Class B common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*".

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Summary consolidated financial and other data

The following tables summarize our consolidated financial and other data for the years and as of the dates indicated. We have derived the summary consolidated statements of operations data for the years ended December 31, 2017 and 2018 from our audited consolidated financial statements and related notes included elsewhere in this prospectus. We have derived the summary consolidated statements of operations data for the six months ended June 30, 2018 and 2019, and the summary consolidated balance sheet data as of June 30, 2019 from our unaudited consolidated interim financial statements and related notes included elsewhere in this prospectus. Our unaudited consolidated interim financial statements were prepared in accordance with generally accepted accounting principles in the United States ("GAAP"), on the same basis as our audited consolidated financial statements and include, in the opinion of management, all adjustments, consisting of normal recurring adjustments, that are necessary for the fair presentation of the financial information set forth in those financial statements. Our historical results are not necessarily indicative of results that may be expected in the future. You should read the following summary consolidated financial and other data together with our consolidated financial statements and related notes included elsewhere in this prospectus and the information in the sections titled "*Selected consolidated financial data*" and "*Management's discussion and analysis of financial condition and results of operations*".

	Year ended December 31,		Six months ended June 30,	
(in thousands, except share and per share data)	**2017**	**2018**	**2018**	**2019**
			(unaudited)	
Consolidated statements of operations data:				
Revenue	$ 71,085	$ 146,313	$ 59,152	$ 109,397
Cost of revenue(1)	10,560	28,661	8,520	28,971
Gross profit	60,525	117,652	50,632	80,426
Operating expenses:				
Research and development(1)	32,164	47,537	23,372	32,999
In-process research and development	—	62,363	6,206	—
Selling, general and administrative(1)	46,736	87,936	41,920	59,464
Accrued contingent liabilities	—	30,580	—	1,360
Total operating expenses	78,900	228,416	71,498	93,823
Loss from operations	(18,375)	(110,764)	(20,866)	(13,397)
Other income (expense):				
Interest income	308	1,024	461	505
Interest expense	(811)	(2,409)	(1,062)	(1,379)
Other income (expense), net	137	(249)	(120)	(141)
Total other income (expense)	(366)	(1,634)	(721)	(1,015)
Loss before provision for income taxes	(18,741)	(112,398)	(21,587)	(14,412)
Provision for income taxes	21	87	29	102
Net loss	$ (18,762)	$ (112,485)	$ (21,616)	$ (14,514)
Net loss per share attributable to common stockholders, basic and diluted(2)	$ (1.62)	$ (8.40)	$ (1.66)	$ (0.96)
Weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted(2)	11,587,751	13,392,273	12,985,535	15,187,258
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(2)		$ (1.45)		$ (0.18)
Weighted-average shares used to compute pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(2)		77,494,992		82,891,536

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(1) Includes stock-based compensation expense as follows:

(in thousands)	Year ended December 31, 2017	Year ended December 31, 2018	Six months ended June 30, 2018	Six months ended June 30, 2019
			(unaudited)	
Cost of revenue	$ 44	$ 85	$ 36	$ 90
Research and development	801	1,030	440	1,798
Selling, general and administrative	816	1,543	530	2,496
Total stock-based compensation expense	$ 1,661	$ 2,658	$ 1,006	$ 4,384

(2) See Note 2 and Note 11 to our consolidated financial statements included elsewhere in this prospectus for further details on the calculation of net loss per share attributable to common stockholders, basic and diluted, the weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted, and unaudited pro forma information.

(in thousands)	As of June 30, 2019 Actual	Pro forma(1)	Pro forma as adjusted(2)(3)
	(unaudited)	(unaudited)	(unaudited)
Consolidated balance sheet data:			
Cash and cash equivalents	$ 56,034	$	$
Working capital(4)	63,999		
Total assets	155,594		
Total current liabilities	43,227		
Total liabilities	140,298		
Total convertible preferred stock	243,244		
Accumulated deficit	(245,630)		
Total stockholders' equity (deficit)	(227,948)		

(1) The pro forma column in the consolidated balance sheet data table above reflects: (a) the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock into Class A common stock and (b) the automatic conversion of all shares of our Convertible Preferred Stock into 67,704,278 shares of Class B common stock, in each case, prior to the closing of this offering and as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*".

(2) The pro forma as adjusted column in the consolidated balance sheet data table above reflects (a) the pro forma adjustments set forth in footnote (1) above and (b) the issuance and sale of shares of Class A common stock by us in this offering at an assumed initial public offering price $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the amount of each of our pro forma as adjusted cash and cash equivalents, working capital, total assets and total stockholders' equity (deficit) by $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions payable by us. Similarly, each increase or decrease of 1.0 million shares in the number of shares of our Class A common stock offered by us would increase or decrease, as applicable, the amount of each of our pro forma as adjusted cash and cash equivalents, working capital, total assets and total stockholders' equity (deficit) by $, assuming the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions payable by us.

(4) Working capital is calculated as current assets less current liabilities. See our consolidated financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

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Key business metrics

We review a number of operating and financial metrics, including the following key metrics, to evaluate our business, measure our performance, identify trends affecting our business, formulate business plans and make strategic decisions.

Instrument installed base

We define the instrument installed base as the cumulative number of Chromium instruments sold since inception.

The table below sets forth our instrument installed base as of the dates presented:

	As of December 31,		As of June 30,	
	2017	2018	2018	2019
Instrument installed base	491	1,021	701	1,284

Consumable pull-through per instrument

We define consumable pull-through per instrument as the total consumables revenue in the given quarter divided by the average instrument installed base during that quarter. We calculate the average instrument installed base for a given quarter using the instrument installed base as of the last day of the prior quarter and the instrument installed base as of the last day of the given quarter. We also calculate a year-to-date consumable pull-through per instrument figure by summing the quarterly pull-through for the quarters in a given year.

The table below sets forth the consumable pull-through per instrument for the periods presented:

	Year ended December 31,		Six months ended June 30,	
(in thousands)	2017	2018	2018	2019
Consumable pull-through per instrument	$ 140	$ 148	$ 72	$ 81

See the section titled "*Management's discussion and analysis of financial condition and results of operations—Key business metrics*" for additional information.

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Risk factors

Investing in our Class A common stock involves a high degree of risk. You should carefully consider the risks described below, as well as the other information in this prospectus, including our financial statements and the related notes and the section titled "Management's discussion and analysis of financial condition and results of operations" in this prospectus, before deciding whether to invest in our Class A common stock. The occurrence of any of the events or developments described below could harm our business, financial condition, results of operations and growth prospects. In such an event, the market price of our Class A common stock could decline and you may lose all or part of your investment. Additional risks and uncertainties not presently known to us or that we currently deem immaterial also may impair our business operations.

Risks related to our business and industry

We have incurred significant losses since inception, we expect to incur losses in the future and we may not be able to generate sufficient revenue to achieve and maintain profitability.

We have incurred significant losses since we were formed in 2012 and expect to incur losses in the future. We incurred net losses of $18.8 million and $112.5 million for the years ended December 31, 2017 and 2018, respectively. We incurred net losses of $21.6 million and $14.5 million for the six months ended June 30, 2018 and 2019, respectively. As of June 30, 2019, we had an accumulated deficit of $245.6 million. We expect that our losses will continue in the near term as we continue to invest significant additional funds toward ongoing research and development and toward the timely commercialization of both new products and improved versions of existing products. We also expect that our operating expenses will increase as a result of becoming a public company and will continue to increase as we grow our business. To date, we have financed our operations principally from the sale of convertible preferred stock, revenue from sales of our products and the incurrence of indebtedness. There can be no assurance that our revenue and gross profit will increase sufficiently such that our net losses decline, or we attain profitability, in the future. Further, our limited operating history and rapid revenue growth over the last several years make it difficult to effectively plan for and model future growth and operating expenses. Our ability to achieve or sustain profitability is based on numerous factors, many of which are beyond our control, including the impact of market acceptance of our products, future product development, our market penetration and margins and current and future litigation. We may never be able to generate sufficient revenue to achieve or sustain profitability and our recent and historical growth should not be considered indicative of our future performance. Our failure to achieve or maintain profitability could negatively impact the value of our Class A common stock.

In particular, we are subject to significant risks of losses related to current litigation matters. See "*—Risks related to litigation and our intellectual property*".

The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer.

We face significant competition in the life sciences technology market. We currently compete with both established and early-stage life sciences technology companies that design, manufacture and market instruments, consumables and software for, among other applications, genomics, single cell analysis, spatial analysis and immunology. We believe our competitors in the life sciences technology market include Becton, Dickinson and Company, Bio-Rad and Nanostring Technologies, Inc., each of which has products that compete to varying degrees with some but not all of our product solutions, as well as a number of other emerging and established companies.

Some of our current competitors are large publicly-traded companies, or are divisions of large publicly-traded companies, and may enjoy a number of competitive advantages over us, including:

- greater name and brand recognition;

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- greater financial and human resources;
- broader product lines;
- larger sales forces and more established distributor networks;
- substantial intellectual property portfolios;
- larger and more established customer bases and relationships; and
- better established, larger scale and lower cost manufacturing capabilities.

We also face competition from researchers developing their own solutions. The area in which we compete involves rapid innovation and some of our customers have in the past, and more may in the future, elect to create their own platform or assays rather than rely on a third-party supplier such as ourselves. This is particularly true for the largest research centers and labs who are continually testing and trying new technologies, whether from a third-party vendor or developed internally. We also compete for the resources our customers allocate for purchasing a wide range of products used to analyze biological systems, some of which are additive to or complementary with our own but not directly competitive.

We cannot assure investors that our products will compete favorably or that we will be successful in the face of increasing competition from products and technologies introduced by our existing competitors, companies entering our markets or developed by our customers internally. In addition, we cannot assure investors that our competitors do not have or will not develop products or technologies that currently or in the future will enable them to produce competitive products with greater capabilities or at lower costs than ours or that are able to run comparable experiments at a lower total experiment cost. Any failure to compete effectively could materially and adversely affect our business, financial condition and operating results.

Our business depends significantly on the success of our Next GEM microfluidic chip.

Since our inception through the first half of 2019, substantially all of our Chromium instruments utilized our GEM microfluidic chips and associated consumables. In November 2018, a jury concluded that our Chromium instruments operating these chips and associated consumables infringe certain of Bio-Rad's patents. We have dedicated significant resources to designing and manufacturing our new Next GEM microfluidic chip, which uses a microfluidic architecture with fundamentally different physics from our GEM microfluidic chip. We introduced our Next GEM microfluidic chips for our Single Cell Gene Expression, Single Cell Immune Profiling and Single Cell ATAC solutions in the second quarter of 2019. We plan to gradually phase out our GEM microfluidic chips and anticipate that our Chromium products utilizing our Next GEM microfluidic chips will become an increasing percentage of our sales and will constitute substantially all of our Chromium sales by the end of 2020. In addition, we have not yet developed Next GEM microfluidic chips for our Single Cell CNV and Linked-Read solutions. Unless the injunction issued under the Bio-Rad litigation is stayed, we will be unable to sell our Single Cell CNV and Linked-Read solutions for use on new instruments unless and until we develop a Next GEM microfluidic chip for such solutions. Until we are able to completely transition to our Next GEM microfluidic chip design, our margins will be negatively impacted by any royalty obligations that result from ongoing litigation matters.

Although our Next GEM microfluidic chips were designed to replace our GEM microfluidic chips, we cannot assure you that we will be able to make our Next GEM microfluidic chip work with all of our solutions, that our Next GEM microfluidic chip will allow our customers to retain the level of performance or quality they have come to expect using our GEM microfluidic chip, that our Next GEM microfluidic chip will replace the sales of our GEM microfluidic chip or that we will be able to manufacture our Next GEM microfluidic chip in sufficient volumes and in sufficient quality in a timely fashion. While we believe that our Chromium solutions, when used with our Next GEM microfluidic chip, do not infringe the asserted Bio-Rad patents, we cannot assure you that our Next GEM microfluidic chip would not be found to infringe other patents, which could prevent us from making, selling and importing our Next GEM microfluidic chips or substantially all of our products. We currently

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expect that, by the end of the third quarter of 2019, all Chromium instruments that we sell will operate exclusively with our Next GEM solutions. We believe that these solutions are very important to our customers research but the delay caused by the injunction may slow customer adoption of our products or cause customers to investigate the availability of competing products or technologies.

We expect to incur increased research and development expenses in the near term and increased inventory and other expenses related to the introduction of, and transition to, our Next GEM microfluidic chip. Our failure to effectively manage product transitions or accurately forecast customer demand with respect to both instruments and consumables may lead to an increased risk of excess or obsolete inventory and resulting charges. We expect that as we transition to our Next GEM microfluidic chips we may need to write down the value of our GEM microfluidic chips and associated consumables we currently hold in inventory. As of June 30, 2019, we held approximately $0.3 million of GEM microfluidic chips in inventory. As we transition to our Next GEM microfluidic chips, we cannot guarantee that our customers will quickly switch to using our Next GEM microfluidic chips in their research. Customers may delay transitioning to our Next GEM microfluidic chips for a variety of reasons, including if they have experiments underway for which they do not want to introduce additional variables. More significantly, customers may decline to purchase our products altogether if they do not believe that our Next GEM microfluidic chips can produce results that are reliable, consistent and comparable to our GEM microfluidic chips.

For additional information relating to this litigation, see the section titled *"Risk factors—Risks related to litigation and our intellectual property—We are involved in significant litigation which has consumed significant resources and management time and adverse resolution of these lawsuits could require us to pay significant damages, and prevent us from selling our products, which would severely adversely impact our business, financial condition or results of operations".*

We are significantly dependent upon revenue generated from the sale of our Chromium solutions, and in particular our Single Cell Gene Expression solutions.

We currently generate substantially all of our revenue from the sale of our Chromium instruments, which we refer to as "instruments", and our proprietary microfluidic chips, slides, reagents and other consumables for both our Visium and Chromium solutions, which we refer to as "consumables". In particular, we are dependent upon revenue generated from sales of our Single Cell Gene Expression consumables, which accounted for approximately half of our revenue in each of the years ended December 31, 2017 and 2018 and for the six months ended June 30, 2019. There can be no assurance that we will be able to design future products, particularly non-Chromium product lines, that will meet the expectations of our customers or that our future products will become commercially viable. As technologies change in the future for research equipment in general and in genomics solutions specifically, we will be expected to upgrade or adapt our products in order to keep up with the latest technology. To date we have limited experience simultaneously designing, testing, manufacturing and selling non-Chromium products and there can be no assurance we will be able to do so. Our sales expectations are based in part on the assumption that our Chromium Connect instrument will increase workflows for our future customers and their associated purchases of our consumables. If sales of our Chromium Connect instruments fail to materialize so will the related consumable sales and associated revenue. Our sales expectations are also based in part on the continued success of our Single Cell Gene Expression solutions. If our recently introduced solutions, such as our Single Cell Immune Profiling and Single Cell ATAC solutions, or our upcoming Visium solution, fail to achieve sufficient market acceptance or sales of our Single Cell Gene Expression consumables decrease, our consumables revenue could be materially and adversely impacted.

Our business currently depends significantly on research and development spending by academic institutions, a reduction in which could limit demand for our products and adversely affect our business and operating results.

In each of the year end December 31, 2018 and the six months ended June 30, 2019, approximately 70% of our direct sales revenue came from sales to academic institutions. Much of their funding was, in turn, provided by

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various state, federal and international government agencies. In the near term, we expect that a large portion of our revenue will continue to be derived from sales of Chromium products, including our instruments and consumables, to academic institutions. As a result, in the near term, the demand for our products will depend upon the research and development budgets of these customers, which are impacted by factors beyond our control, such as:

- decreases in government funding of research and development;
- changes to programs that provide funding to research laboratories and institutions, including changes in the amount of funds allocated to different areas of research or changes that have the effect of increasing the length of the funding process;
- macroeconomic conditions and the political climate;
- scientists' and customers' opinions of the utility of new products or services;
- citation of new products or services in published research;
- changes in the regulatory environment;
- differences in budgetary cycles;
- competitor product offerings or pricing;
- market-driven pressures to consolidate operations and reduce costs; and
- market acceptance of relatively new technologies, such as ours.

In addition, various state, federal and international agencies that provide grants and other funding may be subject to stringent budgetary constraints that could result in spending reductions, reduced grant making, reduced allocations or budget cutbacks, which could jeopardize the ability of these customers, or the customers to whom they provide funding, to purchase our products. For example, congressional appropriations to the National Institutes of Health (the "NIH") have generally increased year-over-year for the last 18 years, and reached a new high in 2018, but the NIH also experiences occasional year-over-year decreases in appropriations, including as recently as 2013. In addition, funding for life science research has increased more slowly during the past several years compared to previous years and has actually declined in some countries. There is no guarantee that NIH appropriations will not decrease in the future, and a decrease may be more likely under the current administration, whose annual budget proposals have repeatedly decreased NIH appropriations. A decrease in the amount of, or delay in the approval of, appropriations to NIH or other similar United States or international organizations, such as the Medical Research Council in the United Kingdom, could result in fewer grants benefiting life sciences research. These reductions or delays could also result in a decrease in the aggregate amount of grants awarded for life sciences research or the redirection of existing funding to other projects or priorities, any of which in turn could cause our customers and potential customers to reduce or delay purchases of our products. Our operating results may fluctuate substantially due to any such reductions and delays. Any decrease in our customers' budgets or expenditures, or in the size, scope or frequency of their capital or operating expenditures, could materially and adversely affect our business, operating results and financial condition.

Our failure to effectively manage product transitions or accurately forecast customer demand could result in excess or obsolete inventory and resulting charges.

Because the market for our products is characterized by rapid technological advances, we frequently introduce new products with improved ease-of-use, improved performance or additional features and functionality. We

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pre-announce products and services, in some cases before such products and services have been fully developed or tested, and risk failing to meet expectations when such products and services become available. The risks associated with the introduction of new products include the difficulties of predicting customer demand and effectively managing inventory levels to ensure adequate supply of the new product and avoiding excess supply of the legacy product.

We may strategically enter into non-cancelable commitments with vendors to purchase materials for our products in advance of demand to take advantage of favorable pricing, address concerns about the availability of future supplies or build safety stock to help ensure customer shipments are not delayed should we experience higher than anticipated demand for materials with long lead times. For example, inventories increased 79% from $4.8 million as of December 31, 2017 to $8.6 million as of December 31, 2018 and inventories increased 43% from $8.6 million as of December 31, 2018 to $12.3 million as of June 30, 2019, primarily to fulfill the increased level of expected demand of our products, as well as to build inventory in anticipation of product transitions.

Our future success is dependent upon our ability to increase penetration in our existing markets.

Our customer base includes academic, government, biopharmaceutical, biotechnology and other institutions. In both the year ended December 31, 2018 and the six months ended June 30, 2019, approximately 70% of our direct sales revenue came from sales to academic institutions. Our success will depend upon our ability to increase our market penetration among these customers and to expand our market by developing and marketing new products and new applications for existing products. We recently announced our intention to introduce our Visium product line for spatial analysis and our future success will partially depend on our ability to commercialize this product line. As we continue to scale our business, we may find that certain of our products, certain customers or certain markets, including the biopharmaceutical market, may require a dedicated sales force or sales personnel with different experience than those we currently employ. Identifying, recruiting and training additional qualified personnel would require significant time, expense and attention.

We cannot assure investors that we will be able to further penetrate our existing market or that the market will be able to sustain our current and future product offerings. Any failure to increase penetration in our existing markets would adversely affect our ability to improve our operating results.

We may not be able to develop new products, enhance the capabilities of our existing products to keep pace with rapidly changing technology and customer requirements or successfully manage the transition to new product offerings, any of which could have a material adverse effect on our business and operating results.

Our success depends on our ability to develop new products and applications for our technology in existing and new markets, while improving the performance and cost-effectiveness of our existing products, in each case in ways that address current and anticipated customer requirements. Such success is dependent upon several factors, including functionality, competitive pricing and integration with existing and emerging technologies. New technologies, techniques or products could emerge that might offer better combinations of price and performance or better address customer requirements as compared to our current or future products. Existing markets for our products, including the genomics, single cell analysis, spatial analysis and other relevant markets, are characterized by rapid technological change and innovation. Competitors may be able to respond more quickly and effectively than we can to new or changing opportunities, technologies, standards or customer requirements. Due to the significant lead time involved in bringing a new product to market, we are required to make a number of assumptions and estimates regarding the commercial feasibility of a new product, including assumptions and estimates regarding the biological analytes that researchers will want to measure, the appropriate method of measuring such analytes, how researchers intend to use the resulting data and the scope and type of data that will be most useful to researchers. As a result, it is possible that we may introduce a new product that uses technologies or methods of analysis that have been displaced by the time of

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launch, addresses a market that no longer exists or is smaller than previously thought, targets biological analytes or produces data that provides less utility to researchers than previously thought or otherwise is not competitive at the time of launch. We anticipate that we will face increased competition in the future as existing companies and competitors develop new or improved products and as new companies enter the market with new technologies. Our ability to mitigate downward pressure on our selling prices will be dependent upon our ability to maintain or increase the value we offer to researchers. The expenses or losses associated with unsuccessful product development or launch activities, or a lack of market acceptance of our new products, could adversely affect our business, financial condition or results of operations.

Because our solutions are used with other products, such as sequencers, to conduct an experiment, we also expect to face competition from these complementary products, either directly or indirectly, as researchers and labs look to reduce the total cost of any given experiment. For example, if a sequencer manufacturer was successful in vertically integrating their product to provide functionality equivalent to our instruments, they would likely be able to deliver a solution that is capable of running comparable experiments with a total experiment cost that is significantly less than the cost of running such experiments using our products together with third-party sequencers. Conversely, if genome sequencing falls out of favor as a preferred approach for genomic research, whether through the development of alternative solutions or real or perceived problems with sequencing itself, the utility of our products could be significantly impacted. It is critical to our success that we anticipate changes such as these in technology and customer requirements and successfully introduce new, enhanced and competitive technologies to meet our customers' and prospective customers' needs on a timely and cost-effective basis. If we do not successfully innovate and introduce new technology into our product lines, our business and operating results will be adversely impacted.

Our ability to attract new customers and increase revenue from existing customers depends in large part on our ability to enhance and improve our existing solutions and to introduce compelling new solutions. The success of any enhancement to our solutions depends on several factors, including timely completion and delivery, competitive pricing, adequate quality testing, integration with existing technologies and overall market acceptance. Any new solution that we develop may not be introduced in a timely or cost-effective manner, may contain errors, vulnerabilities or bugs, or may not achieve the market acceptance necessary to generate significant revenue. If we are unable to successfully develop new solutions, enhance our existing solutions to meet customer requirements, or otherwise gain market acceptance, our business, results of operations and financial condition would be harmed.

Our ability to attract new customers and increase revenue from existing customers also depends on our ability to deliver any enhanced or new solutions to our customers in a format where they can be easily and consistently deployed by most or all users without significant customer service. If our customers believe that deploying our enhanced or new solutions would be overly time-consuming, confusing or technically challenging, then our ability to grow our business would be substantially harmed. We need to create and deliver a repeatable, user-friendly, prescriptive approach to deployment that allows users of all kinds to effectively and easily deploy our solutions, and if we fail to do so, our business and results of operations would be harmed.

The typical development cycle of new life sciences products can be lengthy and complicated, and may require new scientific discoveries or advancements and complex technology and engineering. Such developments may involve external suppliers and service providers, making the management of development projects complex and subject to risks and uncertainties regarding timing, timely delivery of required components or services and satisfactory technical performance of such components or assembled products. If we do not achieve the required technical specifications or successfully manage new product development processes, or if development work is not performed according to schedule, then such new technologies or products may be adversely impacted and our business and operating results may be harmed.

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If our existing and new products fail to achieve and sustain sufficient scientific acceptance, we will not generate expected revenue and our prospects may be harmed.

The life sciences scientific community is comprised of a small number of early adopters and key opinion leaders who significantly influence the rest of the community. The success of life sciences products is due, in large part, to acceptance by the scientific community and their adoption of certain products as best practice in the applicable field of research. The current system of academic and scientific research views publishing in a peer-reviewed journal as a measure of success. In such journal publications, the researchers will describe, not only their discoveries, but also the methods and typically the products used to fuel such discoveries. Mentions in peer-reviewed journal publications is a good barometer for the general acceptance of our products as best practices. Ensuring that early adopters and key opinion leaders publish research involving the use of our products is critical to ensuring our products gain widespread acceptance and market growth. Continuing to maintain good relationships with such key opinion leaders is vital to growing our market. The number of times our products were mentioned in peer-reviewed publications has increased significantly in the last two years. During this time our revenue has also increased significantly. We cannot assure investors that our products will continue to be mentioned in peer-reviewed articles with any frequency or that any new products that we introduce in the future will be mentioned in peer-reviewed articles. If too few researchers describe the use of our products, too many researchers shift to a competing product and publish research outlining their use of that product or too many researchers negatively describe the use of our products in publications, it may drive existing and potential customers away from our products, which could harm our operating results.

If we do not sustain or successfully manage our growth and anticipated growth, our business and prospects will be harmed.

We have experienced rapid growth in recent periods. This growth and our anticipated growth will place significant strains on our management, operational and manufacturing systems and processes, financial systems and internal controls and other aspects of our business. For example, we consummated two acquisitions in 2018 and intend to continue to make investments that meet management's criteria to expand or add key technologies that we believe will facilitate the commercialization of new products in the future. In addition, we launched six new products and new versions of existing products in 2018 and intend to launch additional new products and new versions of existing products in the next six to twelve months. Further development and commercialization of our current and future products are key elements of our growth strategy. Developing and launching new products and innovating and improving our existing products have required us to hire and retain additional scientific, sales and marketing, software, manufacturing, distribution and quality assurance personnel. As a result, we have experienced rapid headcount growth from 110 employees as of December 31, 2015 to 500 employees as of June 30, 2019. As we have grown, our employees have become more geographically dispersed. We currently serve thousands of researchers in approximately 40 countries and plan to continue to expand to new international jurisdictions as part of our growth strategy which will lead to increased dispersion of our employees. Moreover, we expect that we will need to hire additional accounting, finance and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company. Once public, our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. We may face challenges integrating, developing and motivating our rapidly growing and increasingly dispersed employee base. In addition, certain members of our management have not previously worked together for an extended period of time, do not have experience managing a public company or do not have experience managing a global business, which may affect how they manage our growth. To effectively manage our growth, we must continue to improve our operational and manufacturing systems and processes, our financial systems and internal controls and other aspects of our business and continue to effectively expand, train and manage our personnel. As our organization continues to grow, and we are required to implement more complex organizational management

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structures, we may find it increasingly difficult to maintain the benefits of our corporate culture, including our ability to quickly develop and launch new and innovative products. If we do not successfully manage our anticipated growth, our business, results of operations and growth prospects will be harmed.

Our limited operating history and rapid revenue growth make it difficult to evaluate our future prospects and the risks and challenges we may encounter.

We launched our first product in mid-2015 and have experienced significant revenue growth in recent periods, including an increase in revenue of $75.2 million, or 106%, for the year ended December 31, 2018 as compared to the year ended December 31, 2017. In addition, we operate in highly competitive markets characterized by rapid technological advances and our business has, and we expect it to continue, to evolve over time to remain competitive. Our limited operating history, evolving business and rapid growth make it difficult to evaluate our future prospects and the risks and challenges we may encounter and may increase the risk that we will not continue to grow at or near historical rates.

If we fail to address the risks and difficulties that we face, including those described elsewhere in this "*Risk factors*" section, our business, financial condition and results of operations could be adversely affected. We have encountered in the past, and will encounter in the future, risks and uncertainties frequently experienced by growing companies with limited operating histories in rapidly changing industries. If our assumptions regarding these risks and uncertainties, which we use to plan and operate our business, are incorrect or change, or if we do not address these risks successfully, our results of operations could differ materially from our expectations and our business, financial condition and results of operations could be adversely affected.

Our operating results have in the past fluctuated significantly and may continue to fluctuate significantly in the future, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or any guidance we may provide.

Our quarterly and annual operating results may fluctuate significantly, which makes it difficult for us to predict our future operating results. These fluctuations may occur due to a variety of factors, many of which are outside of our control, including, but not limited to:

- the level of demand for our products, which may vary significantly, and our ability to increase penetration in our existing markets and expand into new markets;
- customers accelerating, canceling, reducing or delaying orders as a result of developments related to our litigation or to our transition to Next GEM microfluidic chips;
- the outcomes of and related rulings in the litigation and administrative proceedings in which we are currently involved;
- our ability to successfully manufacture and transition our existing customers to our Next GEM microfluidic chips;
- the timing and cost of, and level of investment in, research and development and commercialization activities relating to our products, which may change from time to time;
- the volume and mix of our instrument and consumable sales or changes in the manufacturing or sales costs related to our instruments and consumables;
- the success of our recently announced products, such as our Chromium Connect and Visium platform, and the introduction of other new products or product enhancements by us or others in our industry;
- the timing and amount of expenditures that we may incur to acquire, develop or commercialize additional products and technologies or for other purposes, such as the expansion of our facilities;

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- changes in governmental funding of life sciences research and development or changes that impact budgets, budget cycles or seasonal spending patterns of our customers;
- future accounting pronouncements or changes in our accounting policies;
- the outcome of any future litigation or governmental investigations involving us, our industry or both;
- difficulties encountered by our commercial carriers in delivering our instruments or consumables, whether as a result of external factors such as weather or internal issues such as labor disputes;
- general market conditions and other factors, including factors unrelated to our operating performance or the operating performance of our competitors;
- higher than anticipated warranty costs; and
- the other factors described in this "*Risk factors*" section.

The cumulative effects of the factors discussed above could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. Investors should not rely on our past results as an indication of our future performance.

This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any guidance we may provide, or if the guidance we provide is below the expectations of analysts or investors, the price of our Class A common stock could decline substantially. Such a stock price decline could occur even when we have met or exceeded any previously publicly stated guidance we may provide.

The sizes of the markets for our solutions may be smaller than estimated and new market opportunities may not develop as quickly as we expect, or at all, limiting our ability to successfully sell our solutions.

The market for genomics products is new and evolving, making it difficult to predict with any accuracy the sizes of the markets for our current and future solutions. Our estimates of the annual total addressable market for our current and future solutions are based on a number of internal and third-party estimates and assumptions. In particular, our estimates are based on our expectations that: (a) researchers in the market for certain life sciences research tools and technologies, such as flow cytometry, next generation sequencing, laboratory automation, microscopy and sample preparation, among others, will view our solutions as competitive alternatives to, or better options than, such existing tools and technologies; (b) researchers who already own such existing tools and technologies will recognize the ability of our solutions to complement, enhance and enable new applications of their current tools and technologies and find the value proposition offered by our solutions convincing enough to purchase our solutions in addition to the tools and technologies they already own; and (c) the trends we have seen among our customers with respect to placements of our instruments in comparison to the installed base of RT-PCR units and next generation sequencers are representative of the broader market. Underlying each of these expectations are a number of estimates and assumptions, including the assumption that government or other sources of funding will continue to be available to life sciences researchers at times and in amounts necessary to allow them to purchaser our solutions.

In addition, our growth strategy involves launching new solutions and expanding sales of existing solutions into new markets in which we have limited or no experience, such as the biopharmaceutical market. Sales of new or existing solutions into new market opportunities may take several years to develop and mature and we cannot be certain that these market opportunities will develop as we expect. For example, new life sciences technology is often not adopted by the relevant market until a sufficient amount of research conducted using such technology has been published in peer-reviewed publications. Because there can be a considerable delay

between the launch of a new life sciences product and publication of research using such product, new life sciences products do not generally contribute a meaningful amount of revenue in the year they are introduced. In certain markets, such as the biopharmaceutical market, new life sciences technology, even if sufficiently covered in peer-reviewed publications, may not be adopted until the consistency and accuracy of such technology, method or device has been proven. As a result, the sizes of the annual total addressable market for new markets and new products are even more difficult to predict.

While we believe our assumptions and the data underlying our estimates of the total annual addressable market for our solutions are reasonable, these assumptions and estimates may not be correct and the conditions supporting our assumptions or estimates, or those underlying the third-party data we have used, may change at any time, thereby reducing the accuracy of our estimates. As a result, our estimates of the annual total addressable market for our solutions may be incorrect.

The future growth of the market for our current and future solutions depends on many factors beyond our control, including recognition and acceptance of our solutions by the scientific community as best practice and the growth, prevalence and costs of competing products and solutions. Such recognition and acceptance may not occur in the near term, or at all. If the markets for our current and future solutions are smaller than estimated or do not develop as we expect, our growth may be limited and our business, financial condition and operational results may be adversely affected.

Our management uses certain key business metrics to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions and such metrics may not accurately reflect all of the aspects of our business needed to make such evaluations and decisions, in particular as our business continues to grow.

In addition to our consolidated financial results, our management regularly reviews a number of operating and financial metrics, including our instrument installed base and consumable pull-through per instrument, to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions. We define the instrument installed base as the cumulative number of instruments sold since inception and define consumable pull-through per instrument as the total consumables revenue in the given quarter divided by the average instrument installed base during that quarter. We believe that these metrics are representative of our current business; however, these metrics may not accurately reflect all aspects of our business and we anticipate that these metrics may change or may be substituted for additional or different metrics as our business grows and as we introduce new products. For example, we expect that our expansion into new markets and adoption by new customers who may not have the same financial resources to devote to consumable purchases as our existing customer base could adversely impact our pull-through figures. These metrics also do not accurately reflect information relating to customers who purchase consumables but do not own an instrument, whom we refer to as “halo users”. Halo users and the future introduction of consumables that may not use instruments, such as our recently announced Visium solution, or instruments that are expected to use a greater amount of consumables, such as our Chromium Connect instrument, could reduce the utility of our consumable pull-through per instrument metric and make it difficult to compare such figures over time. Moreover, we expect some of our halo users to purchase instruments of their own which would decrease the consumables sold per instrument and therefore decrease our annual consumable pull-through per instrument. Though we expect the introduction of enhanced features and additional solutions on our Chromium instrument to increase consumable pull-through per instrument and to offset this decline, there are no assurances we will be successful in doing so. If our management fails to review other relevant information or change or substitute the key business metrics they review as our business grows and we introduce new products, their ability to accurately formulate financial projections and make strategic decisions may be compromised and our business, financial results and future growth prospects may be adversely impacted.

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We are dependent on single source and sole source suppliers for some of the components and materials used in our products and the loss of any of these suppliers could harm our business.

We do not have long-term contracts with our suppliers for the significant majority of the services, materials and components we use for the manufacture and delivery of our products. In certain cases, we also rely on single suppliers for all of our requirements for some of our materials or components. In most cases we do not have long term contracts with these suppliers, and even in the cases where we do the contracts include significant qualifications that would make it extremely difficult for us to force the supplier to provide us with their services, materials or components should they choose not to do so. We are therefore subject to the risk that these third-party suppliers will not be able or willing to continue to provide us with materials and components that meet our specifications, quality standards and delivery schedules. Factors that could impact our suppliers' willingness and ability to continue to provide us with the required materials and components include disruption at or affecting our suppliers' facilities, such as work stoppages or natural disasters, adverse weather or other conditions that affect their supply, the financial condition of our suppliers and deterioration in our relationships with these suppliers. In addition, we cannot be sure that we will be able to obtain these materials and components on satisfactory terms. Any increase in material and component costs could reduce our sales and harm our gross margins. In addition, any loss of a material supplier may permanently cause a change in one or more of our products that may not be accepted by our customers or cause us to eliminate that product altogether.

For example, we depend on a limited number of suppliers for enzymes and amplification mixes used in our consumables. In some cases, these manufacturers are the sole source of certain types of enzymes and reagents. We do not have long-term contracts with any of these sole source suppliers. Lead times for some of these components can be several months or more. In the event that demand increases, a manufacturing 'lot' does not meet our specifications or we fail to forecast and place purchase orders sufficiently in advance, this could result in a material shortage. Some of the components and formulations are proprietary to our vendors, thereby making second sourcing and development of a replacement difficult. Furthermore, such vendors may have intellectual property rights that could prevent us from sourcing such reagents from other vendors. If enzymes and reagents become unavailable from our current suppliers and we are unable to find acceptable substitutes for these suppliers, we may be required to produce them internally or change our product designs.

We have not qualified secondary sources for all materials or components that we source through a single supplier and we cannot assure investors that the qualification of a secondary supplier will prevent future supply issues. Disruption in the supply of materials or components would impair our ability to sell our products and meet customer demand, and also could delay the launch of new products, any of which could harm our business and results of operations. If we were to have to change suppliers, the new supplier may not be able to provide us materials or components in a timely manner and in adequate quantities that are consistent with our quality standards and on satisfactory pricing terms. In addition, alternative sources of supply may not be available for materials that are scarce or components for which there are a limited number of suppliers.

If our facilities or our third-party manufacturers' facilities become unavailable or inoperable, our research and development program could be adversely impacted and manufacturing of our instruments and consumables could be interrupted.

The manufacturing process for our Chromium Controller takes place at our third-party manufacturer's facilities in California. The majority of our consumables are manufactured at our facilities in Pleasanton, California using proprietary equipment. Certain raw materials, such as oligonucleotides and enzymes, are custom manufactured by outside partners. We periodically review the manufacturing capacity of our consumables and we expect to manufacture an increasing amount of consumables in-house. Our Pleasanton facilities also house the majority of our research and development and quality assurance teams. Our planned Chromium Connect will be

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manufactured by our partner at their facility. The facilities and the equipment we and our third-party manufacturers use to manufacture our instruments and consumables and that we use in our research and development program would be costly to replace and could require substantial lead times to repair or replace.

Our facilities in Pleasanton are vulnerable to natural disasters and catastrophic events. For example, our Pleasanton facilities are located near earthquake fault zones and are vulnerable to damage from earthquakes as well as other types of disasters, including fires, floods, power loss, communications failures and similar events. If any disaster or catastrophic event were to occur, our ability to operate our business would be seriously, or potentially completely, impaired. If our facilities or any of our third-party manufacturers' facilities become unavailable for any reason, we cannot provide assurances that we will be able to secure alternative manufacturing facilities with the necessary capabilities and equipment on acceptable terms, if at all. We may encounter particular difficulties in replacing our Pleasanton facilities given the specialized equipment housed within it. The inability to manufacture our instruments and/or consumables, combined with our limited inventory of manufactured instruments and consumables, may result in the loss of customers or harm our reputation, and we may be unable to reestablish relationships with those customers in the future. Because certain of our consumables and the raw materials we use to manufacture consumables at our Pleasanton facilities are perishable and must be kept in temperature controlled storage, the loss of power to our facilities, mechanical or other issues with our storage facilities or other events that impact our temperature controlled storage could result in the loss of some or all of such consumables and raw materials and we may not be able to replace them without disruption to our customers or at all.

In both the year ended December 31, 2018 and the six months ended June 30, 2019, approximately 70% of our direct sales revenue came from sales to academic institutions, whose research often requires long uninterrupted studies performed on a consistent basis over time; thus interruptions in our ability to supply consumables could be particularly damaging to these studies and our reputation. In addition, the budgetary planning and approval process for academic research programs can be lengthy and begin well in advance of the planned purchase of our instrument and/or consumables. If our products become unavailable during the planning process, researchers may use alternative products.

If our research and development program were disrupted by a disaster or catastrophe, the launch of new products and the timing of improvements to existing products could be significantly delayed and could adversely impact our ability to compete with other available products and solutions. If our or our third-party manufacturers' capabilities are impaired, we may not be able to manufacture and ship our products in a timely manner, which would adversely impact our business. Although we possess insurance for damage to our property and the disruption of our business, this insurance may not be sufficient to cover all of our potential losses and may not continue to be available to us on acceptable terms, or at all.

We may be unable to consistently manufacture our instruments and consumables to the necessary specifications or in quantities necessary to meet demand at an acceptable cost or at an acceptable performance level.

Our products are integrated solutions with many different components that work together. As such, a quality defect in a single component can compromise the performance of the entire solution. Certain of our consumables are manufactured at our Pleasanton, California facilities using complex processes, sophisticated equipment and strict adherence to specifications and quality systems procedures. In many cases, the consumables we manufacture are bundled with products or components that we source from third parties and assemble, package and perform quality assurance testing at our Pleasanton facilities. Our Chromium Controllers are manufactured by our third-party manufacturers at their facilities. In order to successfully generate revenue from our products, we need to supply our customers with products that meet their expectations for quality and functionality in accordance with established specifications. In order to ensure we are able to meet these expectations, our

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Pleasanton, California manufacturing facilities, as well as the facilities of our third-party manufacturers, have obtained International Organization for Standardization ("ISO") quality management certifications and employ other quality control measures. While customer complaints regarding defects in our products and consumables have historically been low, our customers have experienced quality control and manufacturing defects in the past. For example, a manufacturing defect in certain of our Chromium Controllers resulted in an unacceptable level of LCD screen failures and we launched a free replacement program in 2018 to allow customers to replace affected LCD screens as a result. As we continue to grow and introduce new products, and as our products incorporate increasingly sophisticated technology, it will be increasingly difficult to ensure our products are produced in the necessary quantities without sacrificing quality. There is no assurance that we or our third-party manufacturers will be able to continue to manufacture our products so that they consistently achieve the product specifications and quality that our customers expect. Certain of our consumables are subjected to a shelf life, after which their performance is not ensured. Shipment of consumables that effectively expire early or shipment of defective instruments or consumables to customers may result in recalls and warrantee replacements, which would increase our costs, and depending upon current inventory levels and the availability and lead time for additional inventory, could lead to availability issues. Any future design issues, unforeseen manufacturing problems, such as contamination of our or their facilities, equipment malfunctions, aging components, quality issues with components and materials sourced from third-party suppliers, or failures to strictly follow procedures or meet specifications, may have a material adverse effect on our brand, business, financial condition and operating results and could result in us or our third-party manufacturers losing ISO quality management certifications. If we or our third-party manufacturers fail to maintain ISO quality management certifications, our customers might choose not to purchase products from us. Furthermore, we or our third-party manufacturers may not be able to increase manufacturing to meet anticipated demand or may experience downtime.

In addition, as we increase manufacturing capacity, we will also need to make corresponding improvements to other operational functions, such as our customer service and billing systems, compliance programs and our internal quality assurance programs. We will also need additional equipment, manufacturing and warehouse space and trained personnel to process higher volumes of products. We cannot assure you that any increases in scale, related improvements and quality assurance will be successfully implemented or that equipment, manufacturing and warehouse space and appropriate personnel will be available. As we develop additional products, we may need to bring new equipment on-line, implement new systems, technology, controls and procedures and hire personnel with different qualifications. Our ability to increase our manufacturing capacity at our Pleasanton, California location is complicated by the use of our proprietary equipment that is not readily available from third-party manufacturers.

The risk of manufacturing defects or quality control issues is generally higher for new products, whether produced by us or a third-party manufacturer, products that are transitioned from one manufacturer to another, particularly if manufacturing is transitioned or initiated with a manufacturer we have not worked with in the past, and products that are transferred from one manufacturing facility to another. Our current product roadmap calls for the introduction of new instruments, such as our Chromium Connect, which integrates our Chromium Controller with complex robotics manufactured by our partner. We also expect to transition manufacturing of our Chromium Controller to a new third-party manufacturer with greater capacity in the near future.

As a result, both of our instruments will soon be manufactured by companies with which we have no prior manufacturing experience and the risk of manufacturing defects or quality control issues could increase as a result. Similarly, we also expect to expand our manufacturing facilities in Pleasanton, California during 2019. This expansion will result in the relocation of certain manufacturing processes and the risk of manufacturing defects or quality control issues in the consumables we manufacture there could increase as a result. We cannot assure investors that we and our third-party manufacturers will be able to launch new products on time, transition manufacturing of existing products to new manufacturers, transition our manufacturing capabilities

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to a new location or transition manufacturing of any additional consumables in-house without manufacturing defects.

An inability to manufacture products and components that consistently meet specifications, in necessary quantities and at commercially acceptable costs will have a negative impact and may have a material adverse effect on our business, financial condition and results of operations.

Undetected errors or defects in our solutions could harm our reputation and decrease market acceptance of our solutions.

Our instruments and consumables, as well as the software that accompanies them, may contain undetected errors or defects when first introduced or as new versions are released. Disruptions or other performance problems with our products or software may adversely impact our customers' research or business, harm our reputation and result in reduced revenue or increased costs associated with product repairs or replacements. If that occurs, we may also incur significant costs, the attention of our key personnel could be diverted or other significant customer relations problems may arise. We may also be subject to warranty claims or breach of contract for damages related to errors or defects in our solutions.

Certain disruptions in supply of, and changes in the competitive environment for, raw materials integral to the manufacturing of our products may adversely affect our profitability.

We use a broad range of materials and supplies, including metals, chemicals and other electronic components, in our products. A significant disruption in the supply of these materials could decrease production and shipping levels, materially increase our operating costs and materially adversely affect our profit margins. Shortages of materials or interruptions in transportation systems, labor strikes, work stoppages, war, acts of terrorism or other interruptions to or difficulties in the employment of labor or transportation in the markets in which we purchase materials, components and supplies for the production of our products, in each case may adversely affect our ability to maintain production of our products and sustain profitability. Unforeseen end-of-life for certain components, such as enzymes, could cause backorders as we modify our product specifications to accommodate replacement components. If we were to experience a significant or prolonged shortage of critical components from any of our suppliers and could not procure the components from other sources, we would be unable to manufacture our products and to ship such products to our customers in a timely fashion, which would adversely affect our sales, margins and customer relations.

We depend on certain technologies that are licensed to us. We do not control these technologies and any loss of our rights to them could prevent us from selling our products.

We rely on licenses in order to be able to use various proprietary technologies that are used in a substantial majority of our consumables. We do not own the patents that are the subject matter of these licenses. Our rights to use these patented technologies in our business are subject to the continuation of and compliance with the terms of those licenses.

We may need to license other technologies to commercialize future products. We may also need to negotiate licenses to patents and patent applications after launching new products. Our business may suffer if the technologies, patents or patent applications are unavailable for license or if we are unable to enter into necessary licenses on acceptable terms.

If we fail to offer high quality customer service, our business and reputation could suffer.

We differentiate ourselves from our competition through our commitment to an exceptional customer experience. Accordingly, high quality customer service is important for the growth of our business and any failure to maintain such standards of customer service, or a related market perception, could affect our ability

to sell products to existing and prospective customers. Additionally, we believe our customer service team has a positive influence on recurring consumables revenue. Providing an exceptional customer experience requires significant time and resources from our customer service team. Therefore, failure to scale our customer service organization adequately may adversely impact our business results and financial condition.

Customers utilize our service teams and online content for help with a variety of topics, including how to use our products efficiently, how to integrate our products into existing workflows, how to determine which of our other products may be needed for a given experiment and how to resolve technical, analysis and operational issues if and when they arise. While we have developed significant resources for remote training, including an extensive library of online videos, we may need to rely more on these resources for future customer training, or we may experience increased expenses to enhance our online and remote solutions. If our customers do not adopt these resources, we may be required to increase the staffing of our customer service team, which would increase our costs. Also, as our business scales, we may need to engage third-party customer service providers, which could increase our costs and negatively impact the quality of the customer experience if such third parties are unable to provide service levels equivalent to ours.

The number of our customers has grown significantly and such growth, as well as any future growth, will put additional pressure on our customer service organization. We may be unable to hire qualified staff quickly enough or to the extent necessary to accommodate increases in demand.

In addition, as we continue to grow our operations and reach a global customer base, we need to be able to provide efficient customer service that meets our customers' needs globally at scale. In geographies where we sell through distributors, we rely on those distributors to provide customer service. If these third-party distributors do not provide a high quality customer experience, our business operations and reputation may suffer.

We depend on our key personnel and other highly qualified personnel, and if we are unable to recruit, train and retain our personnel, we may not achieve our goals.

Our future success depends on our ability to recruit, train, retain and motivate key personnel, including our senior management, research and development, manufacturing and sales, customer service and marketing personnel. In particular, Dr. Saxonov, our Chief Executive Officer and one of our co-founders, and Dr. Hindson, our Chief Scientific Officer, President and one of our co-founders, are critical to our vision, strategic direction, culture and products. Competition for qualified personnel is intense, particularly in the San Francisco Bay Area. As we grow, we may continue to make changes to our management team, which could make it difficult to execute on our business plans and strategies. New hires also require significant training and, in most cases, take significant time before they achieve full productivity. Our failure to successfully integrate these key personnel into our business could adversely affect our business.

Our continued growth depends, in part, on attracting, retaining and motivating highly-trained sales personnel with the necessary scientific background and ability to understand our systems at a technical level to effectively identify and sell to potential new customers. In addition, the continued development of complementary software tools, such as our analysis tools and visualization software, requires us to compete for highly trained software engineers in the San Francisco Bay Area and for highly trained customer service personnel globally. We also compete for computational biologists and qualified scientific personnel with other life science companies, academic institutions and research institutions. Many of our scientific personnel are qualified foreign nationals whose ability to live and work in the United States is contingent upon the continued availability of appropriate visas. Due to the competition for qualified personnel in the San Francisco Bay Area, we expect to continue to rely on foreign nationals to fill part of our recruiting needs. As a result, changes to United States immigration policies could restrain the flow of technical and professional talent into the United

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States and may inhibit our ability to hire qualified personnel. The current United States administration has made restricting immigration and reforming the work visa process a key focus of its initiatives and these efforts may adversely affect our ability to find qualified personnel.

We do not maintain key man life insurance or fixed term employment contracts with any of our employees. As a result, our employees could leave our company with little or no prior notice and would be free to work for a competitor. Because of the complex and technical nature of our products and the dynamic market in which we compete, any failure to attract, train, retain and motivate qualified personnel could materially harm our operating results and growth prospects.

Acquisitions could disrupt our business, cause dilution to our stockholders and otherwise harm our business.

We have and may continue to acquire other businesses and legal entities to add specialized employees, products or technologies as well as pursue technology licenses or investments in complementary businesses. In 2018, we acquired Epinomics, Inc. (“Epinomics”), an epigenetics company based in California, and Spatial Transcriptomics Holdings AB (“Spatial Transcriptomics”), a spatial analysis company based in Stockholm, Sweden. We believe we are successfully integrating the technologies acquired from those companies into our business, but the long term success of these acquisitions is not guaranteed. These transactions and any future transactions could be material to our financial condition and operating results and expose us to many risks, including:

- disruption in our relationships with customers, distributors, manufacturers or suppliers as a result of such a transaction;
- unanticipated liabilities related to acquired companies, including liabilities related to acquired intellectual property or litigation relating thereto;
- difficulties integrating acquired personnel, technologies and operations into our existing business;
- diversion of management time and focus from operating our business;
- failure to realize anticipated benefits or synergies from such a transaction;
- increases in our expenses and reductions in our cash available for operations and other uses;
- possible write-offs or impairment charges relating to acquired businesses; and
- potential higher taxes if our tax position relating to the acquisitions were challenged.

Foreign acquisitions, such as our acquisition of Spatial Transcriptomics, involve unique risks in addition to those mentioned above, including those related to integration of operations across different cultures and languages, currency risks and the particular economic, political and regulatory risks associated with specific countries.

Even if we identify a strategic transaction that we wish to pursue, we may be prohibited from consummating such transaction due to the terms of our existing or any future indebtedness. For example, our Second Amended and Restated Loan and Security Agreement, dated February 9, 2018, with Silicon Valley Bank (as amended, restated or supplemented from time to time, the “Loan and Security Agreement”) includes a covenant that limits our ability to consummate acquisitions and the exceptions to this covenant are limited. If we were to pursue an acquisition that is not permitted by the Loan and Security Agreement, we would be required to seek a waiver from the lender under the Loan and Security Agreement and we cannot assure investors that the lender would grant such a waiver.

Future acquisitions or dispositions could result in potentially dilutive issuances of our equity securities, the incurrence of debt, contingent liabilities or amortization expenses or write-offs of goodwill, any of which could

harm our financial condition. We cannot predict the number, timing or size of future acquisitions, or the effect that any such transactions might have on our operating results.

Seasonality may cause fluctuations in our revenue and results of operations.

We operate on a December 31st year end and believe that there are significant seasonal factors which may cause sales of our products, and particularly our Chromium Controller, to vary on a quarterly or yearly basis and increase the magnitude of quarterly or annual fluctuations in our operating results. We believe that this seasonality results from a number of factors, including the procurement and budgeting cycles of many of our customers, especially government- or grant-funded customers, whose cycles often coincide with government fiscal year ends. For example, the United States government's fiscal year end occurs in our third quarter and may result in increased sales of our products during this quarter if government-funded customers have unused funds that may be forfeited, or future budgets that may be reduced, if such funds remain unspent at such fiscal year end. Furthermore, the academic budgetary cycle similarly requires grantees to 'use or lose' their grant funding, which seems to be tied disproportionately to the end of the calendar year, driving sales higher during the fourth quarter. Similarly, our biopharmaceutical customers typically have calendar year fiscal years which also result in a disproportionate amount of their purchasing activity occurring during our fourth quarter. These factors have contributed, and may contribute in the future, to substantial fluctuations in our quarterly operating results. Because of these fluctuations, it is possible that in some quarters our operating results will fall below the expectations of securities analysts or investors. If that happens, the market price of our Class A common stock would likely decrease. These fluctuations, among other factors, also mean that our operating results in any particular period may not be relied upon as an indication of future performance. Seasonal or cyclical variations in our sales have in the past, and may in the future, become more or less pronounced over time, and have in the past materially affected, and may in the future materially affect, our business, financial condition, results of operations and prospects.

Our reliance on distributors for sales of our products in certain geographies outside of the United States could limit or prevent us from selling our products and impact our revenue.

We sell our products through third-party distributors in Asia, certain regions of Europe, South America, the Middle East and Africa. We intend to continue to grow our business internationally and to do so we must attract additional distributors and retain existing distributors to maximize the commercial opportunity for our products. There is no guarantee that we will be successful in attracting or retaining desirable sales and distribution partners or that we will be able to enter into such arrangements on favorable terms. Most of our distribution relationships are non-exclusive and permit such distributors to distribute competing products. As such, our distributors may not commit the necessary resources to market our products to the level of our expectations or may choose to favor marketing the products of our competitors. If current or future distributors do not perform adequately or we are unable to enter into effective arrangements with distributors in particular geographic areas, we may not realize long-term international revenue growth.

We rely exclusively on commercial carriers to transport our products, including perishable consumables, to our customers in a timely and cost-efficient manner and if these delivery services are disrupted, our business will be harmed.

Our business depends on our ability to quickly and reliably deliver our products and in particular, our consumables, to our customers. Certain of our consumables are perishable and must be kept below certain temperatures. As such, we ship certain of our refrigerated consumables on dry ice and only ship such consumables on certain days of the week to reach customers on a timely basis. Disruptions in the delivery of our products, whether due to labor disruptions, bad weather, natural disasters, terrorist acts or threats or for other reasons could result in our customers receiving consumables that are not fit for usage, and if used, could

result in inaccurate results or ruined experiments. While we work with customers to replace any consumables that are impacted by delivery disruptions, our reputation and our business may be adversely impacted even if we replace perished consumables free of charge. In addition, if we are unable to continue to obtain expedited delivery services on commercially reasonable terms, our operating results may be adversely affected.

In addition, should our commercial carriers encounter difficulties in delivering our instruments or consumables to customers, particularly at the end of any financial quarter, it could adversely impact our ability to recognize revenue for those products in that period and accordingly adversely affect our financial results for that period.

Ethical, legal, privacy and social concerns or governmental restrictions surrounding the use of the genomic and multi-omic information and gene editing could reduce demand for our products.

While we do not make gene sequencing or gene editing products, our products are used to better understand genomic information that could further gene editing endeavors. For example, our single cell gene expression solutions allow users to examine cells that have been genetically perturbed using clustered regularly interspaced short palindromic repeats ("CRISPR") gene editing technology. Recent advances in genome editing or gene therapy, using CRISPR systems such as CRISPR Cas9 technology have been subject to negative publicity and increased regulatory scrutiny, in part due to the underlying ethical, legal, privacy and social concerns regarding the use or potential misuse of such technology. Governmental authorities could, for safety, social or other purposes, call for limits on or regulation of technologies and products used in the genome editing or gene therapy fields. Such concerns or governmental restrictions could limit the use of our products. Because the science and technology of genome editing or gene therapy is incredibly complex, any regulations or restrictions placed on such technology or aimed at curtailing its usage could, intentionally or inadvertently, limit or restrict the usage of our products. Any such restrictions or any reduction in usage of our products as a result of concerns regarding the usage of genome editing technology could have a material adverse effect on our business, financial condition and results of operations.

We are subject to certain manufacturing restrictions related to licensed technologies that were developed with the financial assistance of United States government grants.

We are subject to certain United States government regulations because we have licensed technologies that were developed with United States government grants. Such licensed technologies are used, for example, in a substantial majority of our consumables. In accordance with these regulations, these licenses provide that products embodying the technologies are subject to domestic manufacturing requirements. If this domestic manufacturing requirement is not met, the government agency that funded the relevant grant is entitled to exercise specified rights ("march-in rights") which if exercised would allow the government agency to require the licensors or us to grant a non-exclusive, partially exclusive or exclusive license in any field of use to a third-party designated by such agency. The exercise of march-in rights or the termination of our license of the relevant technologies could materially adversely affect our business, operations and financial condition. As of June 30, 2019, all of our products embodying licensed technology subject to march-in rights were manufactured in the United States. While we do not expect to move manufacturing of these products to facilities located outside of the United States, we cannot assure investors that such products will always be manufactured in the United States or that the applicable government agency would grant a waiver of such requirement. These restrictions may limit our ability to manufacture our products in geographies where it may be more economically favorable to do so which could limit our ability to respond to competitive developments or otherwise adversely affect our results of operations.

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Our products could become subject to government regulation and the regulatory approval and maintenance process for such products may be expensive, time-consuming and uncertain both in timing and in outcome.

Our products are not subject to the clearance or approval of the U.S. Food and Drug Administration (the "FDA"), as they are not intended to be used for the diagnosis, treatment or prevention of disease. However, as we continue to expand our product line and the applications and uses of our existing products into new fields, certain of our current or future products could become subject to regulation by the FDA, or comparable international agencies, including requirements for regulatory clearance or approval of such products before they can be marketed. Such regulatory approval processes or clearances may be expensive, time-consuming and uncertain, and our failure to obtain or comply with such approvals and clearances could have an adverse effect on our business, financial condition and operating results. In addition, changes to the current regulatory framework, including the imposition of additional or new regulations, including regulation of our products, could arise at any time during the development or marketing of our products, which may negatively affect our ability to obtain or maintain FDA or comparable regulatory approval of our products, if required. Further, sales of devices for diagnostic purposes may subject us to additional healthcare regulation and enforcement by the applicable government agencies. Such laws include, without limitation, state and federal anti-kickback, fraud and abuse, false claims, privacy and security and physician sunshine laws and regulations.

Diagnostic products are regulated as medical devices by the FDA and comparable international agencies and may require either clearance from the FDA following the 510(k) pre-market notification process or pre-market approval from the FDA, in each case prior to marketing. Obtaining the requisite regulatory approvals can be expensive and may involve considerable delay. None of our products are currently regulated as medical devices, however, if our products labeled as "For Research Use Only. Not for use in diagnostic procedures" ("RUO") are used, or could be used, for the diagnosis of disease, the regulatory requirements related to marketing, selling and supporting such products could change or be uncertain, even if such use by our customers is without our consent.

If the FDA or other regulatory authorities assert that any of our products are subject to regulatory clearance or approval, our business, financial condition or results of operations could be adversely affected.

Enhanced trade tariffs, import restrictions, export restrictions, Chinese regulations or other trade barriers may materially harm our business.

We are continuing to expand our international operations as part of our growth strategy and have experienced an increasing concentration of sales in certain regions outside the United States, especially in the Asia-Pacific region. For the year ended December 31, 2018 and the six months ended June 30, 2019, sales outside of North America constituted approximately 42% and 44%, respectively, of our sales revenue and our largest markets outside of North America were China and Germany. There is currently significant uncertainty about the future relationship between the United States and various other countries, most significantly China, with respect to trade policies, treaties, government regulations and tariffs. The current United States presidential administration has called for substantial changes to United States foreign trade policy with respect to China and other countries, including the possibility of imposing greater restrictions on international trade and significant increases in tariffs on goods imported into the United States. In September 2018, the United States Trade Representative (the "USTR") enacted a tariff on the import of other Chinese products with a combined import value of approximately $200 billion. The tariff became effective on September 24, 2018, with an initial rate of 10% and increased to 25% effective on May 10, 2019.

Additionally, our business may be adversely impacted by retaliatory trade measures taken by China or other countries. Such measures could include restrictions on our ability to sell or import our instruments and/or consumables into certain countries or have the effect of increasing the prices of our instruments and/or

consumables. For example, China has promised to impose retaliatory tariffs in response to the USTR tariffs referred to above and any such retaliatory tariffs could adversely impact our ability to sell instruments and consumables in China. While at this time neither the United States nor China has specifically imposed additional tariffs on healthcare related products, the nature of this dispute is evolving and additional products such as ours could become subject to tariffs, which could adversely affect the marketability of our products and our results of operations. Further, the continued threats of tariffs, trade restrictions and trade barriers could have a generally disruptive impact on the global economy and, therefore, negatively impact our sales. Given the relatively fluid regulatory environment in China and the United States and uncertainty how the United States or foreign governments will act with respect to tariffs, international trade agreements and policies, there could be additional tax or other regulatory changes in the future. Any such changes could directly and adversely impact our financial results and results of operations.

Additionally, in November 2018, the United States Commerce Department's Bureau of Industry and Security released an advance notice of proposed rulemaking to control the export of emerging technologies. This notice included "[b]iotechnology, including nanobiology; synthetic biology; genomic and genetic engineering; or neurotech" as possible areas of increased export controls. Therefore, it is possible that our ability to export our products may be restricted in the future.

The imposition of new, or changes in existing, tariffs, trade restrictions, trade barriers, export controls or retaliatory trade measures taken by other countries could adversely impact our business, financial condition and results of operations.

Doing business internationally creates operational and financial risks for our business.

We currently serve thousands of researchers in approximately 40 countries and plan to continue to expand to new international jurisdictions as part of our growth strategy. For the year ended December 31, 2018 and the six months ended June 30, 2019, approximately 42% and 44%, respectively, of our revenue was generated from sales to customers located outside of North America. We believe that a significant portion of our future revenue will come from international sources. We sell directly in North America and certain regions of Europe and have a significant portion of our sales and customer service personnel in the United States. We sell our products through third-party distributors in Asia, certain regions of Europe, South America, the Middle East and Africa. As a result, we or our distribution partners may be subject to additional regulations. Conducting operations on an international scale requires close coordination of activities across multiple jurisdictions and time zones. If we fail to coordinate and manage these activities effectively, our business, financial condition or results of operations could be materially and adversely affected and failure to comply with laws and regulations applicable to business operations in foreign jurisdictions may also subject us to significant liabilities and other penalties. International operations entail a variety of other risks, including, without limitation:

- challenges in staffing and managing foreign operations;
- potentially longer sales cycles and more time required to engage and educate customers on the benefits of our products outside of the United States;
- the potential need for localized software, documentation and post-sales support;
- reduced protection for intellectual property rights in some countries and practical difficulties of enforcing intellectual property and contract rights abroad;
- complexities associated with managing a third-party contract manufacturer located outside of the United States;

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- United States and foreign government trade restrictions, including those which may impose restrictions on the importation, exportation, re-exportation, sale, shipment or other transfer of programming, technology, components and/or services to foreign persons;
- changes in diplomatic and trade relationships, including new tariffs, trade protection measures, import or export licensing requirements, trade embargoes and other trade barriers;
- tariffs imposed by the United States on goods from other countries and tariffs imposed by other countries on United States goods, or increases in existing tariffs;
- deterioration of political relations between the United States and Canada, China, the United Kingdom and the European Union, which could have a material adverse effect on our sales and operations in these countries;
- changes in social, political and economic conditions or in laws, regulations and policies governing foreign trade, manufacturing, development and investment both domestically as well as in the other countries and jurisdictions into which we sell our products, including as a result of the referendum held in the United Kingdom approving the separation of the United Kingdom from the European Union;
- difficulties in obtaining export licenses or in overcoming other trade barriers and restrictions resulting in delivery delays or our inability to sell our products in certain countries;
- increased financial accounting and reporting burdens and complexities; and
- significant taxes or other burdens of complying with a variety of foreign laws, including laws relating to privacy and data protection such as the General Data Protection Regulation (the “GDPR”) which took effect in the European Union in 2018.

In conducting our international operations, we are subject to United States laws relating to our international activities, such as the Foreign Corrupt Practices Act of 1977, as well as foreign laws relating to our activities in other countries, such as the United Kingdom Bribery Act of 2010. Additionally, we are subject to laws that prohibit the conduct of business with persons that are subject to “sanctions”, including but not limited to persons listed on the United States Department of Commerce’s List of Denied Persons and the United States Department of Treasury’s Specially Designated Nationals and Blocked Persons List. Failure to comply with these laws and other applicable laws may subject us to claims or financial and/or other penalties in the United States and/or foreign countries that could materially and adversely impact our operations or financial condition. These risks have become increasingly prevalent as we have expanded our sales into countries that are generally recognized as having a higher risk of corruption.

Historically, most of our revenue has been denominated in U.S. dollars, although we have sold our products and services in local currency outside of the United States, principally the euro. For the year ended December 31, 2018 and the six months ended June 30, 2019, approximately 16% and 14%, respectively, of our sales were denominated in currencies other than the U.S. dollar. Our expenses are generally denominated in the currencies in which our operations are located, which is primarily in the United States. As our operations in countries outside of the United States grow, our results of operations and cash flows will become increasingly subject to fluctuations due to changes in foreign currency exchange rates, which could harm our business in the future. For example, if the value of the U.S. dollar increases relative to foreign currencies, in the absence of a corresponding change in local currency prices, our revenue could be adversely affected as we convert revenue from local currencies to U.S. dollars. In addition, because we conduct business in currencies other than U.S. dollars, but report our results of operations in U.S. dollars, we also face remeasurement exposure to fluctuations in currency exchange rates, which could hinder our ability to predict our future results and earnings and could materially impact our results of operations. We do not currently maintain a program to hedge exposures to non-U.S. dollar currencies.

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Violations of complex foreign and United States laws and regulations could result in fines and penalties, criminal sanctions against us, our officers or our employees, prohibitions on the conduct of our business and on our ability to offer our products and services in one or more countries, and could also materially affect our brand, our international growth efforts, our ability to attract and retain employees, our business and our operating results. Even if we implement policies or procedures designed to ensure compliance with these laws and regulations, there can be no assurance that our distribution partners, our employees, contractors or agents will not violate our policies and subject us to potential claims or penalties.

Significant U.K. or European developments stemming from the U.K.'s decision to withdraw from the European Union could have a material adverse effect on us.

In June 2016, the United Kingdom held a referendum and voted in favor of leaving the European Union, and in March 2017, the government of the United Kingdom formally initiated the withdrawal process. Negotiations for the United Kingdom's exit from the European Union ("Brexit") have created political and economic uncertainty, particularly in the United Kingdom and the European Union, and this uncertainty may last for years. Our business in the United Kingdom, the European Union and worldwide could be affected during this period of uncertainty, and perhaps longer, by the impact of the United Kingdom's referendum. There are many ways in which this business could be affected, only some of which we are able to currently identify.

The decision of the United Kingdom to withdraw from the European Union has caused and, along with events that could occur in the future as a consequence of the United Kingdom's withdrawal, may continue to cause significant volatility in global financial markets, including in global currency and debt markets. This volatility could cause a slowdown in economic activity in the United Kingdom, Europe or globally, which could adversely affect our operating results and growth prospects. In addition, our business could be negatively affected by new trade agreements or data transfer agreements between the United Kingdom and other countries, including the United States, and by the possible imposition of trade or other regulatory and immigration barriers in the United Kingdom. In addition, access to European Union research funding by research scientists based in the United Kingdom may be reduced or cut off altogether. It also is unclear whether Brexit may limit the ability or willingness of the United Kingdom's Medical Research Council to continue funding genomic or single cell research by local research centers and labs. For the year ended December 31, 2018 and the six months ended June 30, 2019, the United Kingdom comprised approximately $8.0 million and $5.6 million, respectively, of our worldwide product revenue. The impact of the United Kingdom's withdrawal from the European Union could negatively impact our revenue as a result of currency fluctuations, a slowdown in research funding or restricted budgets. In addition, the growth of sales in the United Kingdom may be slowed or those sales may even decline as a result of this withdrawal. Additionally, distribution costs for products sold in the United Kingdom may be increased due to trade agreements and incremental importation expenses. These possible negative impacts, and others resulting from the United Kingdom's actual or threatened withdrawal from the European Union, may increase our cost of doing business in Europe, disrupt our European operations and adversely affect our operating results and growth prospects.

The illegal distribution and sale by third parties of counterfeit or unfit versions of our products or stolen products could have a negative impact on our reputation and business.

Third parties might illegally distribute and sell counterfeit or unfit versions of our products, which do not meet our rigorous manufacturing, distribution and quality standards. As we expand our business internationally, we expect to encounter counterfeit versions of our products, particularly our consumables. A researcher who receives and uses counterfeit consumables could obtain erroneous results, experience failed experiments or potentially damage his or her instrument. Our reputation and business could suffer harm as a result of counterfeit products sold under our brand name. In addition, inventory that is stolen from warehouses, plants

or while in-transit, and that is subsequently improperly stored and sold through unauthorized channels, could adversely impact our customers' experiments, our reputation and our business.

We currently plan to implement a new company-wide enterprise resource planning system in 2020 and such implementation could adversely affect our business and results of operations or the effectiveness of internal control over financial reporting.

We currently plan to implement a new company-wide enterprise resource planning ("ERP") system in 2020 to handle the business and financial processes within our operations, manufacturing and corporate functions. ERP implementations are complex and time-consuming projects that involve substantial expenditures on system software, the need to hire consultants and additional personnel for the implementation and implementation activities that can continue for several years. ERP implementations also require transformation of business and financial processes in order to reap the benefits of the ERP system. Our business and results of operations could be adversely affected if we experience operating problems and/or cost overruns during the ERP implementation process, or if the ERP system and the associated process changes do not give rise to the benefits that we expect. If we do not effectively implement and transition to the new ERP system as planned or if the system does not operate as intended, our business, results of operations and internal controls over financial reporting could be adversely affected.

Our solutions contain third-party open source software components and failure to comply with the terms of the underlying open source software licenses could restrict our ability to sell our products.

Our solutions contain software tools licensed by third parties under open source software licenses. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source software licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. Some open source software licenses contain requirements that the licensee make its source code publicly available if the licensee creates modifications or derivative works using the open source software, depending on the type of open source software the licensee uses and how the licensee uses it. If we combine our proprietary software with open source software in a certain manner, we could, under certain open source software licenses, be required to release the source code of our proprietary software to the public for free. This would allow our competitors to create similar products with less development effort and time and ultimately could result in a loss of product sales and revenue. In addition, some companies that use third-party open source software have faced claims challenging their use of such open source software and their compliance with the terms of the applicable open source license. We may be subject to suits by third parties claiming ownership of what we believe to be open source software, or claiming non-compliance with the applicable open source licensing terms. Use of open source software may also present additional security risks because the public availability of such software may make it easier for hackers and other third parties to compromise or attempt to compromise our technology platform and systems.

Although we review our use of open source software to avoid subjecting our solutions to conditions we do not intend, the terms of many open source software licenses have not been interpreted by United States courts, and there is a risk that these licenses could be construed in a way that could impose unanticipated conditions or restrictions on our ability to commercialize our solutions. Moreover, we cannot assure investors that our processes for monitoring and controlling our use of open source software in our solutions will be effective. If we are held to have breached the terms of an open source software license, we could be required to seek licenses from third parties to continue offering our solutions on terms that are not economically feasible, to re-engineer our solutions, to discontinue the sale of our solutions if re-engineering could not be accomplished on a timely basis, or to make generally available, in source code form, our proprietary code, any of which could adversely affect our business, operating results and financial condition.

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We collect, process, store, share, disclose and use personal information and other data, which subjects us to governmental regulations and other legal obligations related to privacy and security, and our actual or perceived failure to comply with such obligations could harm our business.

We collect, process, store, transmit, disclose and use information from our employees, customers and others, including personal information and other data, some of which may be sensitive in nature. There are numerous federal, state and foreign laws and regulations regarding data protection, privacy and security. We strive to comply with applicable laws, our posted policies and legal contractual obligations relating to privacy and data protection. However, the scope of these laws is changing, is subject to differing interpretations, may be costly to comply with and may be inconsistent among countries and jurisdictions or conflict with other rules. Our business, including our ability to operate and expand internationally, could be adversely affected if legislation or regulations are adopted, interpreted or implemented in a manner that is inconsistent with our current business practices and that require changes to these practices.

The global data protection landscape is rapidly evolving and new laws and regulations are likely to be enacted and violations of existing and new laws and regulations may subject companies to significant penalties and fines, government investigations and/or enforcement actions, private litigation and other claims. For example, the European Union's recent adoption of the GDPR introduced stringent requirements for processing personal data. The GDPR is likely to increase compliance burdens on us, including by mandating potentially burdensome documentation requirements and granting certain rights to individuals to control how we collect, use, disclose, retain and leverage information about them or how we obtain consent from them. The processing of sensitive personal data, such as physical health condition, may impose heightened compliance burdens under the GDPR and is a topic of active interest among foreign regulators. In addition, the GDPR provides for breach reporting requirements, more robust regulatory enforcement and greater penalties for noncompliance than previous data protection laws, including fines of up to €20 million or 4% of a noncompliant company's global annual revenue for the preceding financial year, whichever is greater. As we continue to expand into other foreign countries and jurisdictions, we may be subject to additional laws and regulations that may affect how we conduct business.

In the United States, California recently enacted the California Consumer Privacy Act (the "CCPA"), which may limit or impose requirements on how we may collect and use personal information and is expected to come into effect in January 2020. The impact of this law on us and others in our industry is and will remain unclear until proposed bills amending the CCPA have wound their way through the legislative process and until regulations are issued by the California Attorney General. Similar privacy and data protection laws have also been proposed in other states and at the federal level.

Any failure or perceived failure by us or our vendors or partners to comply with these laws and regulations, our privacy policies, our privacy-related obligations to employees, customers or other third parties or privacy or security-related legal obligations, or any actual or perceived compromise of security that results in the unauthorized access to or disclosure, alteration, theft, loss, transfer or use of personal or other information, including personally identifiable information or other sensitive data, may result in governmental enforcement actions, fines and penalties, litigation or public statements critical of us by consumer advocacy groups or others and could cause our customers, partners or others to lose trust in us, which could have an adverse effect on our business.

If we experience a significant disruption in our information technology systems or breaches of data security, our business could be adversely affected.

We rely on information technology systems to keep financial records, facilitate our research and development initiatives, manage our manufacturing operations, maintain quality control, fulfill customer orders, maintain

corporate records, communicate with staff and external parties and operate other critical functions. Our information technology systems are potentially vulnerable to disruption due to breakdown, malicious intrusion and computer viruses or other disruptive events including but not limited to natural disasters and catastrophes. Cyberattacks and other malicious internet-based activity continue to increase and cloud-based platform providers of services have been and are expected to continue to be targeted. In addition to traditional computer “hackers”, malicious code (such as viruses and worms), employee theft or misuse, denial-of-service attacks and sophisticated nation-state and nation-state supported actors now engage in attacks (including advanced persistent threat intrusions). Despite significant efforts to create security barriers to such threats, it is virtually impossible for us to entirely mitigate these risks. If our security measures are compromised as a result of third-party action, employee or customer error, malfeasance, stolen or fraudulently obtained log-in credentials or otherwise, our reputation could be damaged, our business may be harmed and we could incur significant liability. If we were to experience a prolonged system disruption in our information technology systems or those of certain of our vendors, it could negatively impact our ability to serve our customers, which could adversely impact our business. If operations at our facilities were disrupted, it may cause a material disruption in our business if we are not capable of restoring functionality on an acceptable timeframe. In addition, our information technology systems (and those of our vendors and partners) are potentially vulnerable to data security breaches, whether by internal bad actors (e.g., employees) or external bad actors (attacks of which are becoming increasingly sophisticated, including social engineering and phishing scams), which could lead to the exposure of personal data, sensitive data and confidential information to unauthorized persons. Such data security breaches could lead to the loss of trade secrets or other intellectual property, or could lead to the exposure of personal information (including sensitive personal information) of our employees, customers and others, any of which could have a material adverse effect on our business, reputation, financial condition and results of operations.

We have not always been able in the past and may be unable in the future to anticipate or prevent techniques used to obtain unauthorized access or to compromise our systems because the techniques used change frequently and are generally not detected until after an incident has occurred. Concerns regarding data privacy and security may cause some of our customers to stop using our solutions and fail to renew their subscriptions. This discontinuance in use or failure to renew could substantially harm our business, operating results and growth prospects.

In addition, any such access, disclosure or other loss or unauthorized use of information or data could result in legal claims or proceedings, regulatory investigations or actions, and other types of liability under laws that protect the privacy and security of personal information, including federal, state and foreign data protection and privacy regulations, violations of which could result in significant penalties and fines. In addition, although we seek to detect and investigate all data security incidents, security breaches and other incidents of unauthorized access to our information technology systems and data can be difficult to detect and any delay in identifying such breaches or incidents may lead to increased harm and legal exposure of the type described above.

The cost of investigating, mitigating and responding to potential data security breaches and complying with applicable breach notification obligations to individuals, regulators, partners and others can be significant. Our insurance policies may not be adequate to compensate us for the potential costs and other losses arising from such disruptions, failures or security breaches. In addition, such insurance may not be available to us in the future on economically reasonable terms, or at all. Further, defending a suit, regardless of its merit, could be costly, divert management attention and harm our reputation.

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We rely on on-premise, co-located and third-party data centers and platforms to host our website and other online services, as well as for research and development purposes and any interruptions of service or failures may impair and harm our business.

Our proprietary software is a crucial component of our solutions, as our software allows our end users to visualize genomic and multi-omic information provided by our instruments and reagents. All of our software is currently downloadable free of charge from our website for installation and use by end users on their computer systems. Our website is hosted with various third-party service providers located in the United States. We rely on on-premises, co-located and third-party infrastructure in the San Francisco Bay Area and other regions in the United States to perform computationally demanding analysis tasks for our research and development program and for other business purposes.

In the event of any technical problems that may arise in connection with our on-premise, co-located or third-party data centers, we could experience interruptions in our ability to provide products and services to our customers or in our internal functions, including research and development, which rely on such services. Interruptions or failures may be caused by a variety of factors, including infrastructure changes, human or software errors, viruses, security attacks, fraud, spikes in customer usage and denial of service issues. Interruptions or failures in our operations or services may reduce our revenue, result in the loss of customers, adversely affect our ability to attract new customers or harm our reputation. Significant interruptions to our research and development program could cause us to delay the introduction of new products or improvements to existing products, which could adversely impact our business, our results of operations and the competitiveness of our products.

Our current solutions are capable of generating large datasets, the analysis of which can be time consuming without access to a high-performance computing system. The visualization of such data can also be computationally intensive. As we iterate and improve our products and as the related technologies advance, our continued growth may require an ability to provide our customers with direct access to a high-performance computing system and/or alternative means of obtaining our software. As a result, we expect our reliance on internal and third-party data centers to increase in the future.

Further, as we rely on third-party and public-cloud infrastructure, we will depend in part on third-party security measures to protect against unauthorized access, cyberattacks and the mishandling of customer data. In addition, failures to meet customers' expectations with respect to security and confidentiality of their data and information could damage our reputation and affect our ability to retain customers, attract new customers and grow our business. In addition, a cybersecurity event could result in significant increases in costs, including costs for remediating the effects of such an event, lost revenue due to a decrease in customer trust and network downtime; increases in insurance coverage due to cybersecurity incidents; and damages to our reputation because of any such incident.

Our indebtedness may impair our financial and operating flexibility.

The Loan and Security Agreement provides for up to $50.0 million of term loans and a $25.0 million revolving asset-backed credit facility. As of June 30, 2019, $30.0 million of term loan borrowings were outstanding. As of June 30, 2019, revolving loan borrowings of $25.0 million were available to be drawn and $20.0 million of additional term loan borrowings were available to be drawn before January 1, 2020, subject to certain conditions. We currently intend to partially draw under our revolving line of credit, prior to the consummation of this offering, in order to provide us with additional liquidity in connection with our operations. The Loan and Security Agreement contains affirmative and negative covenants, including a covenant requiring us to maintain minimum revenue over specified periods of time and covenants that restrict, among other things, our ability to dispose of assets, change our business, management, ownership or business locations, enter into mergers or acquisitions, incur additional indebtedness or encumber any of our assets. Borrowings under the Loan and Security Agreement are secured by substantially all of our assets, excluding our intellectual property but

including the proceeds from the sale of any of our intellectual property. These restrictions could limit our operational flexibility and the need to make principal and interest payments on our debt will reduce our ability to fund other aspects of our business, such as our research and development program. Our ability to make principal and interest payments on our indebtedness will depend on our ability to generate cash. If we default under the Loan and Security Agreement and if the default is not cured or waived, the lender could terminate its commitments to lend to us and cause any amounts outstanding to be payable immediately. Under certain circumstances, the lender could also exercise its rights with respect to the collateral securing such loans. Such a default could also result in cross-defaults under other debt instruments. Moreover, any such default would limit our ability to obtain additional financing, which may have an adverse effect on our cash flow and liquidity.

We may incur additional indebtedness in the future. The debt instruments governing such indebtedness could contain provisions that are as, or more, restrictive than our existing debt instruments. If we incur additional debt, a greater portion of our cash flows may be needed to satisfy our debt service obligations. While we do not anticipate that we will need to raise additional financing in the future to fund our operations, in the event that additional financing is required, we may not be able to raise it on terms acceptable to us or at all. As a result, we would be more vulnerable to general adverse economic, industry and capital markets conditions in addition to the risks associated with indebtedness described above.

Our ability to use net operating losses to offset future taxable income may be subject to certain limitations.

As of December 31, 2018, we had federal net operating loss carryforwards ("NOLs") of approximately $116.1 million and federal tax credit carryforwards of approximately $8.3 million. Our federal NOLs generated after January 1, 2018, which total $5.5 million, are carried forward indefinitely, while all of our other federal NOLs and tax credit carryforwards expire beginning in 2032. As of December 31, 2018, we had state NOLs of approximately $93.5 million, which expire beginning in 2032. In addition, we had state tax credit carryforwards of approximately $7.9 million, which do not expire. Our ability to utilize such carryforwards for income tax savings is subject to certain conditions and may be subject to certain limitations in the future due to ownership changes, if any, as defined by rules enacted with the Tax Cuts and Jobs Act of 2017 (the "2017 Tax Act"). As such, there can be no assurance that we will be able to utilize such carryforwards. We have experienced a history of losses and a lack of future taxable income would adversely affect our ability to utilize these NOLs and research and development credit carryforwards. We currently maintain a full valuation allowance against these tax assets.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the "Code"), if a corporation undergoes an "ownership change", the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change attributes, such as research tax credits, to offset its post-change income may be limited. In general, an "ownership change" will occur if there is a cumulative change in our ownership by "5% shareholders" that exceeds 50 percentage points over a rolling three-year period. Similar rules may apply under state tax laws. We completed a study in early 2019 to determine whether an ownership change had occurred under Section 382 or 383 of the Code as of December 31, 2018 and we determined at that time that an ownership change occurred in 2013. As a result, our net operating losses generated through November 1, 2013 may be subject to limitation under Section 382 of the Code. The amount of pre-change loss carryforwards which may be subject to this limitation is $4.8 million. Our ability to use net operating loss carry forwards, research and development credit carryforwards and other tax attributes to reduce future taxable income and liabilities may be subject to limitations based on the ownership change in 2013, possible changes since the completion of the study or as a result of this offering. As a result, if we earn net taxable income, our ability to use our pre-change net operating loss carryforwards or other pre-change tax attributes to offset United States federal and state taxable income may still be subject to limitations, which could potentially result in increased future tax liability to us.

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We are subject to risks related to taxation in multiple jurisdictions.

We are subject to income taxes in both the United States and foreign jurisdictions. Significant judgments based on interpretations of existing tax laws or regulations are required in determining our provision for income taxes. Our effective income tax rate could be adversely affected by various factors, including, but not limited to, changes in the mix of earnings in tax jurisdictions with different statutory tax rates, changes in the valuation of deferred tax assets and liabilities, changes in existing tax policies, laws, regulations or rates, changes in the level of non-deductible expenses (including share-based compensation), changes in the location of our operations, changes in our future levels of research and development spending, mergers and acquisitions or the result of examinations by various tax authorities. Although we believe our tax estimates are reasonable, if the United States Internal Revenue Service or other taxing authority disagrees with the positions taken on our tax returns, we could have additional tax liability, including interest and penalties. If material, payment of such additional amounts upon final adjudication of any disputes could have a material impact on our results of operations and financial position.

Changes in tax laws or regulations that are applied adversely to us or our customers may have a material adverse effect on our business, cash flow, financial condition or results of operations.

New income, sales, use or other tax laws, statutes, rules, regulations or ordinances could be enacted at any time, which could affect the tax treatment of our domestic and foreign earnings. Any new taxes could adversely affect our domestic and international business operations and our business and financial performance. Further, existing tax laws, statutes, rules, regulations or ordinances could be interpreted, changed, modified or applied adversely to us. For example, the 2017 Tax Act significantly revised the Code. The recently enacted federal income tax law, among other things, contains significant changes to corporate taxation, including a reduction of the federal statutory rates from a top marginal rate of 35% to a flat rate of 21%, limitation of the tax deduction for interest expense to 30% of adjusted earnings (except for certain small businesses), limitation of the deduction for net operating losses to 80% of current year taxable income, elimination of net operating loss carrybacks, one time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, elimination of U.S. tax on foreign earnings (subject to certain important exceptions), immediate deductions for certain new investments instead of deductions for depreciation expense over time and modifying or repealing many business deductions and credits. Notwithstanding the reduction in the corporate income tax rate, the overall impact of the new federal tax law is uncertain and our business and financial condition could be adversely affected. It is also unknown if and to what extent various states will conform to the newly enacted federal tax law. The impact of this tax reform on us and on holders of our Class A common stock is likewise uncertain and could be adverse.

If we fail to maintain an effective system of disclosure controls and internal control over financial reporting, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

As a public company, we will be subject to the reporting requirements of the Exchange Act, SOX and the rules and regulations of the applicable listing standards of the Nasdaq Global Select Market (“Nasdaq”). We expect that the requirements of these rules and regulations will continue to increase our legal, accounting and financial compliance costs, make some activities more difficult, time-consuming and costly, and place significant strain on our personnel, systems and resources.

SOX requires, among other things, that we maintain effective disclosure controls and procedures and internal control over financial reporting. We are continuing to develop and refine our disclosure controls and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we will file with the SEC is accurately recorded, processed, summarized and reported within the time periods

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specified in SEC rules and forms and that information required to be disclosed in reports under the Exchange Act is accumulated and communicated to our principal executive and financial officers. We are also continuing to improve our internal control over financial reporting. In order to maintain and improve the effectiveness of our disclosure controls and procedures and internal control over financial reporting, we have expended, and anticipate that we will continue to expend, significant resources including accounting-related costs and significant management oversight.

Our current controls and any new controls that we develop may become inadequate because of changes in conditions in our business. Further, weaknesses in our disclosure controls and internal control over financial reporting may be discovered in the future. Any failure to develop or maintain effective controls or any difficulties encountered in their implementation or improvement could harm our results of operations or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods. Any failure to implement and maintain effective internal control over financial reporting also could adversely affect the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting that we will eventually be required to include in our periodic reports that will be filed with the SEC. Ineffective disclosure controls and procedures and internal control over financial reporting could also cause investors to lose confidence in our reported financial and other information, which would likely have a negative effect on the trading price of our Class A common stock. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on Nasdaq. We are not currently required to comply with the SEC rules that implement Section 404 of SOX and are therefore not required to make a formal assessment of the effectiveness of our internal control over financial reporting for that purpose. As a public company, we will be required to provide an annual management report on the effectiveness of our internal control over financial reporting commencing with our second annual report on Form 10-K.

We cannot provide any assurance that significant deficiencies or material weaknesses in our internal controls over financial reporting will not be identified in the future. If we fail to remediate any significant deficiencies or material weaknesses that may be identified in the future or encounter problems or delays in the implementation of internal controls over financial reporting, we may be unable to conclude that our internal controls over financial reporting are effective. We are currently implementing an internal audit function and any failure to correctly do so could lead to significant deficiencies or material weaknesses in our financial reporting. Any failure to develop or maintain effective controls or any difficulties encountered in our implementation of our internal controls over financial reporting could result in material misstatements that are not prevented or detected on a timely basis, which could potentially subject us to sanctions or investigations by the SEC or other regulatory authorities. Ineffective internal controls could cause investors to lose confidence in us and the reliability of our financial statements and cause a decline in the price of our Class A common stock.

Our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal control over financial reporting until our first annual report filed with the SEC where we are an “accelerated filer” or a “large accelerated filer”. At such time, our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our internal control over financial reporting is documented, designed or operating. Any failure to maintain effective disclosure controls and internal control over financial reporting could materially and adversely affect our business, results of operations and financial condition and could cause a decline in the trading price of our Class A common stock.

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If our estimates or judgments relating to our critical accounting policies are based on assumptions that change or prove to be incorrect, our operating results could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our Class A common stock.

The preparation of financial statements in conformity with generally accepted accounting principles in the United States ("GAAP") requires management to make estimates and assumptions that affect the amounts reported in our financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. For example, in connection with our adoption and implementation of the new revenue accounting standard, management will make judgments and assumptions based on our interpretation of the new standard. The new revenue standard is principle-based and interpretation of those principles may vary from company to company based on their unique circumstances. It is possible that interpretation, industry practice and guidance may evolve as we apply the new standard. If our assumptions underlying our estimates and judgements relating to our critical accounting policies change or if actual circumstances differ from our assumptions, estimates or judgements, our operating results may be adversely affected and could fall below our publicly announced guidance or the expectations of securities analysts and investors, resulting in a decline in the market price of our Class A common stock.

Risks related to litigation and our intellectual property

We are involved in significant litigation which has consumed significant resources and management time and adverse resolution of these lawsuits could require us to pay significant damages, and prevent us from selling our products, which would severely adversely impact our business, financial condition or results of operations.

Our success depends in part on our non-infringement of the patents or proprietary rights of third parties. Third parties have asserted and may in the future assert that our products infringe patents that they have obtained and may in the future obtain. We could incur substantial costs and divert the attention of our management and technical personnel in defending ourselves against any of these claims. Any adverse ruling or perception of an adverse ruling in defending ourselves against these claims could have an adverse impact on our business, financial condition or results of operations. Furthermore, parties making claims against us have obtained and may in the future be able to obtain injunctive or other relief, which effectively could block our ability to further develop, commercialize, market or sell products or services and have resulted and could in the future result in the award of substantial damages against us. In the event of a successful infringement claim against us, we may be required to pay damages and obtain one or more licenses from third parties or be prohibited from selling certain products or services. In addition, we may be unable to obtain these licenses at a reasonable cost, if at all. We could therefore incur substantial costs related to royalty payments for licenses obtained from third parties, which could negatively affect our gross margins and earnings per share. In addition, we could encounter delays in product introductions while we attempt to develop alternative methods or products. Defense of any lawsuit or failure to obtain any of these licenses on favorable terms could prevent us from commercializing products and the prohibition of sale of any of our products or services could adversely affect our ability to grow or achieve or maintain profitability. Regardless of merit or eventual outcome, lawsuits brought against us may result in decreased demand for our products, injury to our reputation and increased insurance costs.

In particular, we are currently involved in the following litigation matters related to substantially all of our products, the loss of any of which could have a material adverse effect on our business, operations, financial results and reputation. Beginning in 2015, Bio-Rad has filed five separate patent infringement cases against

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substantially all of our products, including instruments and consumables. These litigations are generally distinct and involve different Bio-Rad patents, however, the patents asserted by Bio-Rad in the ITC are also asserted in the district court case filed in the Northern District of California. In addition, in November 2018, Becton Dickinson filed a patent infringement suit alleging that our gel beads, which are used in substantially all of our products, infringe their patents.

The details of these litigation matters are described below:

The 2015 Delaware Action

In February 2015, Raindance Technologies, Inc. ("Raindance") and the University of Chicago filed suit against us in the U.S. District Court for the District of Delaware, accusing that substantially all of our products that use our GEM microfluidic chips are infringing seven U.S. patents owned by or exclusively licensed to Raindance (the "Delaware Action"). In May 2017, Bio-Rad was substituted as the plaintiff following its acquisition of Raindance. A jury trial was held in November 2018. The jury found that all of our accused products infringed one or more of U.S. Patent Nos. 8,304,193, 8,329,407 and 8,889,083. The jury also concluded that our infringement was willful and awarded Bio-Rad approximately $24 million in damages. Post-trial, Bio-Rad moved for a permanent injunction, treble damages for willful infringement, attorneys' fees, supplemental damages for the period from the second quarter of 2018 through the end of the trial as well as pre- and post-judgment interest.

The Court denied Bio-Rad's request for attorneys' fees and enhanced damages for willful infringement. The Court awarded supplemental damages for the period from the second quarter of 2018 through the end of trial as well as pre- and post-judgment interest. The Court entered final judgment against us in the amount of approximately $35 million in August 2019. In the fourth quarter of 2018, we began recording an accrual for estimated royalties as cost of revenue. This accrual is based on an estimated royalty rate of 15% of worldwide sales of our Chromium instruments operating our GEM microfluidic chips and associated consumables. As of June 30, 2019, we had accrued a total of $55.3 million relating to this matter which includes the $35 million judgment and our estimated 15% royalty for sales through that date.

The Court also granted Bio-Rad a permanent injunction against our GEM microfluidic chips and associated consumables that were found to infringe the Bio-Rad patents, which have historically constituted substantially all of our product sales. However, under the injunction, we are permitted to continue to sell our GEM microfluidic chips and associated consumables for use with our historical installed base of instruments provided that we pay a royalty of 15% into escrow on our net revenue related to such sales. We have appealed the injunction to the Federal Circuit and expect that it will not take effect until the Federal Circuit rules on our request for a stay of the injunction.

We have dedicated significant resources to designing and manufacturing our Next GEM new microfluidic chips which use fundamentally different physics from our GEM microfluidic chips. Neither the jury verdict nor the injunction relate to our Next GEM microfluidic chips and associated consumables which we launched in May 2019 for three of our single cell solutions – Single Cell Gene Expression, Single Cell Immune Profiling and Single Cell ATAC. We currently expect that, by the end of the third quarter of 2019, all Chromium instruments that we sell will operate exclusively with our Next GEM solutions and that our Chromium products utilizing our Next GEM microfluidic chips will constitute substantially all of our Chromium sales by the end of 2020.

Although our Next GEM microfluidic chips were designed to replace our GEM microfluidic chips, we cannot assure you that we will be able to make our Next GEM microfluidic chip work with all of our solutions, that our Next GEM microfluidic chip will allow our customers to maintain the level of performance or quality of our GEM microfluidic chip, that our Next GEM microfluidic chip will replace the sales of the GEM microfluidic chip or that we will be able to manufacture the Next GEM microfluidic chips in sufficient volumes in a timely fashion. Our Next GEM microfluidic chips may be subject to future claims of infringement by Bio-Rad or others and are

currently the subject of the litigation described in this risk factor. While we believe that our Chromium solutions, when used with our Next GEM microfluidic chip, would not infringe the asserted Bio-Rad patents, we cannot assure you that our Next GEM microfluidic chip would not become subject to additional patent infringement litigation, which could prevent us from making, selling and importing our Next GEM microfluidic chips. In addition, it is possible that Bio-Rad could, in the future, claim that our continued sale of products violates orders issued by the court and request that the court impose sanctions or other penalties on us for such violations.

In addition, unless the injunction relating to our GEM microfluidic chips is stayed, we will be unable to sell our Single Cell CNV and Linked-Read solutions for use on new instruments unless and until we develop a Next GEM microfluidic chip for such solutions. Though our Single Cell CNV and Linked-Read solutions have not significantly contributed to our revenue to date, our Single-Cell CNV solution, for example, has proved crucial in understanding how cancers evolve and providing researchers with valuable insights into cancer treatments. Developing a Next GEM microfluidic chip for solutions may require significant uses of our resources and there may be a substantial delay before such products are available to sell to our customers.

As of June 30, 2019, we had accrued a total of $55.3 million relating to this matter. Depending upon the ultimate outcome of the litigation with Bio-Rad, we may be required to pay damages, interest and other amounts at a time specified by the court in excess of these reserves should our accruals prove insufficient to cover the actual damages awarded in the case. While we will continue to evaluate and review our estimate of amounts payable from time to time for any indications that could require us to change our assumptions relating to the amounts already recorded, we cannot assure investors that our estimates and related reserves will be sufficient.

Also in 2015, we filed multiple petitions for *inter partes* review (“IPR”) at the Patent Trial and Appeal Board (“PTAB”) of the U.S. Patent and Trademark Office (“USPTO”) against Raindance and the University of Chicago relating to the patents asserted in the Delaware Action, including U.S. Patent Nos. 7,129,091, 8,658,430, 8,304,193, 8,273,573, 8,329,407, 8,889,083 and 8,822,148. Among these proceedings, all the claims in the ‘430 patent were determined by the PTAB to be invalid, all the claims in the ‘573 patent were canceled, and our invalidity challenges to the remaining Bio-Rad patents were unsuccessful. Accordingly, we may be precluded from challenging the ‘091, ‘193, ‘407 and ‘148 patents at the PTAB in the future as a result of these decisions. Further, because all the claims in the ‘083 patent survived the IPR challenge, we will be precluded from making certain invalidity challenges to this patent at the PTAB, or in a district court or ITC litigation in the future.

The ITC 1068 Action

On July 31, 2017, Bio-Rad and Lawrence Livermore National Security, LLC filed a complaint against us in the U.S. International Trade Commission (“ITC”) pursuant to Section 337 of the Tariff Act of 1930, accusing substantially all of our products of infringing U.S. Patents Nos. 9,089,844, 9,126,160, 9,500,664, 9,636,682 and 9,649,635 (the “ITC 1068 Action”). Bio-Rad is seeking an exclusion order preventing us from importing the accused microfluidic chips, including (1) our GEM microfluidic chip, (2) our gel bead manufacturing microfluidic chip and (3) our Next GEM microfluidic chip, into the United States and a cease and desist order preventing us from selling such imported chips. An evidentiary hearing for the ITC 1068 Action was held in May of 2018 and the presiding judge issued an Initial Determination in September 2018, finding that our GEM microfluidic chips infringe the ‘664, ‘682 and ‘635 patents but not the ‘160 patent. The judge further found that our gel bead manufacturing microfluidic chip and Next GEM microfluidic chip do not infringe any claim asserted against them.

The judge recommended entry of an exclusion order against our GEM microfluidic chips, which are currently being imported into the United States. If the ITC were to adopt the judge’s recommendation regarding the

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exclusion order, we would be prevented from importing such chips, which are used in substantially all of our products, into the United States. The judge also recommended a cease and desist order that would prevent us from selling such imported chips. The ITC is not reviewing the judge's findings that our GEM microfluidic chips directly infringe the '664, '682 and '635 patents. The ITC is currently reviewing the judge's findings that (1) we indirectly infringe the '682 and '635 patents, (2) our gel bead manufacturing microfluidic chip does not infringe certain claims in the '664 patent and (3) our Next GEM microfluidic chip does not infringe certain claims in the '160 and '664 patents. A Final Determination is expected to be issued in late September 2019. The Final Determination is subject to a 60-day presidential review period before taking effect. If the Initial Determination were to be upheld, then we would be unable to import our GEM microfluidic chips and sell such imported chips, which are used in substantially all of our products. The judge recommended a bond of 100% of the entered value of accused products imported during the Presidential review period.

In order to allow our customers to continue their important research, we have dedicated significant resources to developing the capabilities to manufacture our microfluidic chips in the United States prior to the entry of an exclusion order or cease and desist order which could take effect in late November 2019. Prior to the second quarter of 2019, all of our microfluidic chips were manufactured outside of the United States. We expect our United States manufacturing facilities to achieve volume production of certain of our GEM microfluidic chips accounting for the majority of our United States consumable revenue beginning in the fourth quarter of 2019. We cannot assure investors that our U.S. manufacturing facilities can produce our microfluidic chips to the same level of functionality, quality or quantity as our current foreign manufacturer. Moreover, Bio-Rad has also filed suit against us in the U.S. District Court for the Northern District of California, which is discussed separately below. If Bio-Rad succeeds in obtaining an injunction in the district court case, we could be prohibited from selling our GEM microfluidic chips, regardless of where they are manufactured. If we are prohibited from selling our GEM microfluidic chips, our business, operations, financial results and reputation would be significantly adversely impacted.

Further, although the Next GEM microfluidic chips were designed to replace our GEM microfluidic chips, we cannot assure investors that the ITC will not reverse the finding of the Initial Determination in its Final Determination currently expected to be issued in late September 2019 that our Next GEM microfluidic chips or other products do not infringe the patents asserted against them in the ITC 1068 Action. If the ITC reverses the non-infringement finding about our Next GEM microfluidic chips and prohibits us from importing such chips or selling previously imported chips, our business, operations, financial results and reputation would be significantly adversely impacted.

In addition, if Bio-Rad obtains an exclusion order and/or cease and desist order in the ITC 1068 Action, it is possible that Bio-Rad could, in the future, file enforcement proceedings claiming that we have violated such orders and requesting that the ITC impose sanctions or other penalties on us for such violations. Our Next GEM microfluidic chips could also become subject to other patent infringement litigations. If we are prohibited from selling our Next GEM microfluidic chips, our business, operations, financial results and reputation would be significantly adversely impacted.

The Northern District of California Action

On July 31, 2017, Bio-Rad and Lawrence Livermore National Security, LLC also filed suit against us in the U.S. District Court for the Northern District of California, alleging that substantially all of our products infringe U.S. Patents Nos. 9,216,392, 9,347,059 and the five patents asserted in the ITC 1068 Action. The complaint seeks injunctive relief, unspecified monetary damages, costs and attorneys' fees. This litigation has been stayed pending resolution of the ITC 1068 Action. If we are found to infringe these patents or if we are prohibited from selling our products, our business, operations, financial results and reputation could be significantly adversely impacted.

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In 2017 and 2018, we filed multiple petitions for IPR at the PTAB against Bio-Rad regarding U.S. Patent Nos. 9,126,160, 9,216,392, 9,649,635, 9,089,844, 9,636,682 and 9,500,664, all of which were also asserted in the ITC 1068 Action or the Northern District of California Case. The PTAB denied institution of all the IPRs, which may preclude us from challenging these patents at the PTAB in the future.

The Germany Action

On February 13, 2018, Bio-Rad filed suit against us in Germany in the Munich Region Court alleging that our Chromium instruments, GEM microfluidic chips and certain accessories infringe German Utility Model No. DE 20 2011 110 979. Bio-Rad seeks unspecified damages and an injunction prohibiting sales of these products in Germany and requiring us to recall these products sold in Germany subsequent to February 11, 2018. The accused GEM microfluidic chips are currently manufactured in Germany and are currently used in substantially all of our solutions. An initial hearing was held on November 27, 2018, and a subsequent hearing was held on May 15, 2019. The Court has not yet issued a ruling on the merits. If we are prohibited from selling our products in Germany, or if our products are recalled in Germany, our business, operations, financial results and reputation could be adversely impacted.

The 2018 Delaware Action

On October 25, 2018, Bio-Rad filed suit against us in the U.S. District Court for the District of Delaware, alleging that substantially all of our products infringe U.S. Patent Nos. 9,562,837 and 9,896,722. Bio-Rad seeks injunctive relief, unspecified monetary damages, costs and attorneys' fees. Discovery is in progress. If we are found to infringe these patents or if we are prohibited from selling our products, our business, operations, financial results and reputation could be significantly adversely impacted.

The Becton Dickinson Action

On November 15, 2018, Becton, Dickinson and Company and Cellular Research, Inc. filed suit against us in the U.S. District Court for the District of Delaware, alleging that we infringe U.S. Patent Nos. 8,835,358, 9,845,502, 9,315,857, 9,816,137, 9,708,659, 9,290,808, 9,290,809, 9,567,645, 9,567,646, 9,598,736 and 9,637,799. The complaint asserted that substantially all of our products infringe these patents. Plaintiffs seek injunctive relief, unspecified monetary damages, costs and attorneys' fees. On January 18, 2019, we filed a motion to dismiss certain of the asserted claims on the grounds that they are directed to patent ineligible abstract ideas. Discovery is in progress. The Court has not yet ruled on or set a hearing date for the motion. The accused products constitute a substantial majority of our revenue, and if we are found to infringe these patents or if we are prohibited from selling our products, our business, operations, financial results and reputation would be significantly adversely impacted.

As we enter new markets or introduce new products, we expect that competitors will likely claim that our products infringe their intellectual property rights. Our success depends in part on our ability to defend ourselves against such claims and maintain the validity of our patents and other proprietary rights.

We are involved in lawsuits to protect, enforce or defend our patents and other intellectual property rights, which are expensive, time consuming and could ultimately be unsuccessful.

On January 11, 2018, we filed a complaint against Bio-Rad at the ITC pursuant to Section 337 of the Tariff Act of 1930 alleging that Bio-Rad infringes our U.S. Patent Nos. 9,644,204, 9,689,024, 9,695,468 and 9,856,530 (the "ITC 1100 Action"). Our complaint in the ITC 1100 Action seeks an exclusion order preventing Bio-Rad from importing certain microfluidic chips and other products into the United States and a cease and desist order preventing Bio-Rad from selling such importing chips and other products. An evidentiary hearing for the ITC 1100 Action was held in March of 2019.

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The judge issued an Initial Determination on July 12, 2019 finding that Bio-Rad's ddSEQ product for single cell analysis infringes the '024, '468 and '530 patents. The judge found all of our asserted patents to be valid. The judge also rejected Bio-Rad's claim of ownership in all of the asserted patents. The Target Date for the Final Determination is scheduled for November 12, 2019.

Also in January 2018, we filed a related but separate suit against Bio-Rad in the U.S. District Court for the Northern District of California, alleging that Bio-Rad infringes the '204, '024, '468 and '530 patents. The '204, '024, '468 and '530 patents generally relate to gel bead reagents that are used in our Chromium products, which constitute substantially all of our current sales. This litigation has been stayed pending resolution of the ITC 1100 Action.

In January 2019, Bio-Rad also filed petitions for IPR of the '024, '468 and '530 patents at the PTAB seeking to invalidate these patents. In July and August of 2019, the PTAB denied institution of all Bio-Rad's IPRs.

In addition to the litigation and legal proceedings discussed above, we are currently and may in the future be a party to other litigation or legal proceedings to determine the scope and validity of our intellectual property, which, if resolved adversely to us, could invalidate or render unenforceable our intellectual property or generally preclude us from restraining, enjoining or otherwise seeking to exclude competitors from commercializing products using technology developed or used by us. For example, our patents and any patents which we in-license may be challenged, narrowed, invalidated or circumvented. If patents we own or license are invalidated or otherwise limited, other companies may be better able to develop products that compete with ours, which would adversely affect our competitive position, business prospects, results of operations and financial condition.

The following are examples of litigation and other adversarial proceedings or disputes that we could become a party to involving our patents or patents licensed to us:

- we have initiated, and in the future may initiate, litigation or other proceedings against third parties to enforce our patent rights;
- third parties have initiated, and in the future may initiate, litigation or other proceedings seeking to invalidate patents owned by or licensed to us or to obtain a declaratory judgment that their product or technology does not infringe our patents or patents licensed to us or that such patents are invalid or unenforceable;
- third parties have initiated, and in the future may initiate, oppositions, IPRs, post grant reviews or reexamination proceedings challenging the validity or scope of our patent rights, requiring us and/or licensors to participate in such proceedings to defend the validity and scope of our patents;
- there are, and in the future may be, more challenges or disputes regarding inventorship or ownership of patents currently identified as being owned by or licensed to us; or
- at our initiation or at the initiation of a third-party, the USPTO may initiate an interference between patents or patent applications owned by or licensed to us and those of our competitors, requiring us and/or licensors to participate in an interference proceeding to determine the priority of invention, which could jeopardize our patent rights.

Furthermore, many of our employees were previously employed at universities or other life sciences companies, including our competitors or potential competitors. We or our employees may be subject to claims that these employees or we have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of their former employers. Although no such claims are currently pending, litigation may be necessary to defend against such claims if they arise in the future. If we fail to successfully defend such

claims, in addition to paying monetary damages, we may be subject to injunctive relief and lose valuable intellectual property rights. A loss of key research personnel work product could hamper or prevent our ability to commercialize certain potential products, which could severely harm our business. Even if we are successful in defending against these claims, litigation could result in substantial costs and be a distraction to management.

If we are unable to protect our intellectual property effectively, our business would be harmed.

We rely on patent protection as well as trademark, copyright, trade secret and other intellectual property rights protection and contractual restrictions to protect our proprietary technologies, all of which provide limited protection and may not adequately protect our rights or permit us to gain or keep any competitive advantage. As of June 30, 2019, worldwide we owned or exclusively licensed over 175 issued or allowed patents and 470 pending patent applications. We also license additional patents on a non-exclusive and/or territory restricted basis. We continue to file new patent applications to attempt to obtain further legal protection of the full range of our technologies. If we fail to protect our intellectual property, third parties may be able to compete more effectively against us and we may incur substantial litigation costs in our attempts to recover or restrict the use of our intellectual property.

Our success depends in part on obtaining patent protection for our products and processes, preserving trade secrets, patents, copyrights and trademarks, operating without infringing the proprietary rights of third parties and acquiring licenses for technology or products. We may exercise our business judgment and choose to relinquish rights in trade secrets by filing applications that disclose and describe our inventions and certain trade secrets when we seek patent protection for certain of our products and technology. We cannot assure investors that any of our currently pending or future patent applications will result in issued patents and we cannot predict how long it will take for such patents to be issued. Further, in some cases, we have only filed provisional patent applications on certain aspects of our products and technologies and each of these provisional patent applications is not eligible to become an issued patent until, among other things, we file a non-provisional patent application within 12 months of the filing date of the applicable provisional patent application. Such provisional patents may not become issued patents for a variety of reasons, including our failure to file a non-provisional patent application within the permitted timeframe or a decision that doing so no longer makes business or financial sense. Publications of discoveries in scientific literature often lag behind the actual discoveries and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing or in some cases not at all. Therefore, we cannot know with certainty whether we were the first to make the inventions claimed in our owned or licensed patents or pending patent applications, or that we were the first to file for patent protection of such inventions. As a result, the issuance, scope, validity, enforceability and commercial value of our patent rights are highly uncertain, despite the importance of seeking patent protection in our industry.

Further, we cannot assure investors that other parties will not challenge any patents issued to us or that courts or regulatory agencies will hold our patents to be valid or enforceable. We cannot guarantee investors that we will be successful in defending challenges made against our patents and patent applications, even if we spend significant resources defending such challenges. Any successful third-party challenge to our patents could result in the unenforceability or invalidity of such patents and could deprive us of the ability to prevent others from using the technologies claimed in such issued patents.

Changes in either the patent laws or in interpretations of patent laws in the United States or other countries may diminish the value of our intellectual property. We cannot predict the breadth of claims that may be allowed or enforced in our patents or in third-party patents.

In addition to pursuing patents on our technology, we take steps to protect our intellectual property and proprietary technology by entering into confidentiality agreements and intellectual property assignment

agreements with our employees, consultants, corporate partners and, when needed, our advisors. Such agreements may not be enforceable or may not provide meaningful protection for our trade secrets or other proprietary information in the event of unauthorized use or disclosure or other breaches of the agreements and we may not be able to prevent such unauthorized disclosure. Monitoring unauthorized disclosure is difficult and we do not know whether the steps we have taken to prevent such disclosure are, or will be, adequate. If we were to enforce a claim that a third-party had illegally obtained and was using our trade secrets, it would be expensive and time consuming and the outcome would be unpredictable.

We also seek trademark registration to protect key trademarks such as our 10X and CHROMIUM marks, however, we have not yet registered all of our trademarks in all of our current and potential markets. If we apply to register these trademarks, our applications may not be allowed for registration and our registered trademarks may not be maintained or enforced. In addition, opposition or cancellation proceedings may be filed against our trademark applications and registrations and our trademarks may not survive such proceedings. If we do not secure registrations for our trademarks, we may encounter more difficulty in enforcing them against third parties than we otherwise would.

With respect to all categories of intellectual property protection, our competitors could purchase our products and attempt to replicate some or all of the competitive advantages we derive from our development efforts, willfully infringe our intellectual property rights, design around our protected technology or develop their own competitive technologies that fall outside of our intellectual property rights. In addition, competitors may develop their own versions of our products in countries where we did not apply for patents, where our patents have not issued or where our intellectual property rights are not recognized, and compete with us in those countries and markets.

The laws of some countries do not protect intellectual property rights to the same extent as the laws of the United States and many companies have encountered significant problems in protecting and defending such rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents and other intellectual property protection, particularly those relating to biotechnology, which could make it difficult for us to stop the infringement of our patents. Proceedings to enforce our patent rights in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business.

The U.S. law relating to the patentability of certain inventions in the life sciences is uncertain and rapidly changing, which may adversely impact our existing patents or our ability to obtain patents in the future.

Various courts, including the U.S. Supreme Court, have rendered decisions that impact the scope of patentability of certain inventions or discoveries relating to the life sciences. Specifically, these decisions stand for the proposition that patent claims that recite laws of nature (for example, the relationships between gene expression levels and the likelihood of risk of recurrence of cancer) are not themselves patentable unless those patent claims have sufficient additional features that provide practical assurance that the processes are genuine inventive applications of those laws rather than patent drafting efforts designed to monopolize the law of nature itself. What constitutes a “sufficient” additional feature is uncertain. Furthermore, in view of these decisions, in December 2014 the USPTO, published revised guidelines for patent examiners to apply when examining process claims for patent eligibility. This guidance was updated by the USPTO in July 2015 and additional illustrative examples provided in May 2016. The USPTO provided additional guidance on examination procedures pertaining to subject matter eligibility in April 2018 and June 2018. The guidance indicates that claims directed to a law of nature, a natural phenomenon or an abstract idea that do not meet the eligibility requirements should be rejected as non-statutory, patent ineligible subject matter; however, method of treatment claims that practically apply natural relationships should be considered patent eligible. We cannot assure you that our patent portfolio will not be negatively impacted by the current uncertain state of the law,

new court rulings or changes in guidance or procedures issued by the USPTO. From time to time, the U.S. Supreme Court, other federal courts, the U.S. Congress or the USPTO may change the standards of patentability and validity of patents within the life sciences and any such changes could have a negative impact on our business.

Risks related to this offering and ownership of our Class A common stock

The market price of our Class A common stock may be volatile, which could result in substantial losses for investors purchasing shares in this offering.

The initial public offering price for our Class A common stock will be determined through negotiations with the underwriters. This initial public offering price may differ from the market price of our Class A common stock after the offering. As a result, you may not be able to sell your Class A common stock at or above the initial public offering price. Some of the factors that may cause the market price of our Class A common stock to fluctuate include:

- the timing of our launch of future products and degree to which the launch and commercialization thereof meets the expectations of securities analysts and investors;
- the outcomes of and related rulings in the litigation and administrative proceedings in which we are currently involved;
- the failure or discontinuation of any of our product development and research programs;
- changes in the structure or funding of research at academic and research laboratories and institutions, including changes that would affect their ability to purchase our instruments or consumables;
- the success of existing or new competitive businesses or technologies;
- announcements about new research programs or products of our competitors;
- developments or disputes concerning patent applications, issued patents or other proprietary rights;
- the recruitment or departure of key personnel;
- litigation and governmental investigations involving us, our industry or both;
- regulatory or legal developments in the United States and other countries;
- volatility and variations in market conditions in the life sciences sector generally, or the genomics sector specifically;
- investor perceptions of us or our industry;
- the level of expenses related to any of our research and development programs or products;
- actual or anticipated changes in our estimates as to our financial results or development timelines, variations in our financial results or those of companies that are perceived to be similar to us or changes in estimates or recommendations by securities analysts, if any, that cover our Class A stock or companies that are perceived to be similar to us;
- whether our financial results meet the expectations of securities analysts or investors;
- the announcement or expectation of additional financing efforts;

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- stock-based compensation expense under applicable accounting standards;
- sales of our Class A common stock or Class B common stock by us, our insiders or other stockholders;
- the expiration of market standoff or lock-up agreements;
- general economic, industry and market conditions;
- natural disasters or major catastrophic events; and
- the other factors described in this "*Risk factors*" section.

In recent years, stock markets in general, and the market for life science technology companies in particular (including companies in the genomics, biotechnology, diagnostics and related sectors), have experienced significant price and volume fluctuations that have often been unrelated or disproportionate to changes in the operating performance of the companies whose stock is experiencing those price and volume fluctuations. Broad market and industry factors may seriously affect the market price of our Class A common stock, regardless of our actual operating performance. These fluctuations may be even more pronounced in the trading market for our stock shortly following this offering. Following periods of such volatility in the market price of a company's securities, securities class action litigation has often been brought against that company. Because of the potential volatility of our stock price, we may become the target of securities litigation in the future. Securities litigation could result in substantial costs and divert management's attention and resources from our business.

If securities analysts do not publish research or reports about our business or if they publish negative evaluations of our Class A common stock, the price of our Class A common stock could decline.

The trading market for our Class A common stock will rely in part on the research and reports that industry or securities analysts publish about us or our business. We do not currently have and may never obtain research coverage by industry or securities analysts. If no or few analysts commence coverage of us, the trading price of our Class A common stock could decrease. Even if we do obtain analyst coverage, if one or more of the analysts covering our business downgrade their evaluations of our Class A common stock, the price of our Class A common stock could decline. If one or more of these analysts cease to cover our Class A common stock, we could lose visibility in the market for our Class A common stock, which in turn could cause the price of our Class A common stock to decline.

Prior to this offering, there has been no public market for shares of our Class A common stock and an active trading market for our Class A common stock may never develop or be sustained.

Prior to this offering, there has been no public market for shares of our Class A common stock. We have applied to list our Class A common stock on Nasdaq under the symbol "TXG". We cannot assure you that an active trading market for our Class A common stock will develop on that exchange or elsewhere. If an active trading market does not develop, or develops but is not maintained, you may have difficulty selling any of our Class A common stock that you purchase due to the limited public float. Accordingly, we cannot assure you of your ability to sell your shares of Class A common stock when desired or the prices that you may obtain for your shares.

Sales of a substantial number of shares of our Class A common stock by our existing stockholders following this offering could cause the price of our Class A common stock to decline.

Sales of a substantial number of shares of our Class A common stock in the public market could occur at any time following the expiration of the market standoff and lock-up agreements or the early release of these agreements or the perception in the market that the holders of a large number of shares of Class A common

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stock intend to sell shares and could reduce the market price of our Class A common stock. After giving effect to (i) the filing and effectiveness of our amended and restated certificate of incorporation, (ii) the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock into Class A common stock, (iii) the automatic conversion of all shares of our Convertible Preferred Stock outstanding as of June 30, 2019 into 67,704,278 shares of Class B common stock and (iv) the issuance and sale of shares of Class A common stock by us in this offering, we will have shares of Class A common stock outstanding and 75,754,278 shares of Class B common stock outstanding. Of these shares, the shares of Class A common stock we are selling in this offering may be resold in the public market immediately, unless purchased by our affiliates. The remaining shares of Class A common stock, or % of our outstanding shares of Class A common stock after this offering and all shares of our Class B common stock (and any share of Class A common stock into which they are converted) are currently prohibited or otherwise restricted under securities laws, market standoff agreements entered into by our stockholders with us, or lock-up agreements entered into by our stockholders with the underwriters; however, subject to applicable securities law restrictions and excluding shares of Class A common stock issued pursuant to the early exercise of unvested stock options that will remain unvested, the shares of our Class A common stock outstanding after this offering will be able to be sold in the public market beginning on , 2020. The representatives may, in their sole discretion, release all or some portion of the shares subject to lock-up agreements at any time and for any reason. Shares issued upon the exercise of stock options outstanding under our equity incentive plans or pursuant to future awards granted under those plans will become available for sale in the public market to the extent permitted by the provisions of applicable vesting schedules, any applicable market standoff and lock-up agreements, and Rule 144 and Rule 701 under the Securities Act of 1933, as amended (the "Securities Act").

Moreover, after this offering, holders of an aggregate of shares of our Class B common stock will have rights, subject to conditions, to require us to file registration statements with the SEC covering their shares or to include their shares in registration statements that we may file for ourselves or other stockholders as described under "*Description of capital stock—Registration rights*". We also plan to register all shares of Class A common stock that we may issue under our equity compensation and employee stock purchase plans. Once we register these shares, they can be freely sold in the public market upon issuance and, if applicable, vesting, subject to volume limitations applicable to affiliates and the lock-up agreements described in the section titled "*Underwriting*" in this prospectus. Sales of Class A common stock in the public market as restrictions end or pursuant to registration rights may make it more difficult for us to sell equity securities in the future at a time and at a price that we deem appropriate. These sales also could cause the trading price of our Class A common stock to fall and make it more difficult for you to sell shares of our Class A common stock. See the section titled "*Shares eligible for future sale*" for more information regarding shares of Class A common stock that may be sold in the public market after this offering.

If you purchase our Class A common stock in this offering, you will incur immediate and substantial dilution as a result of this offering.

If you purchase our Class A common stock in this offering, you will incur immediate and substantial dilution of $ per share, representing the difference between the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, and our pro forma net tangible book value per share after giving effect to (i) the filing and effectiveness of our amended and restated certificate of incorporation, (ii) the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock into Class A common stock, (iii) the automatic conversion of all shares of our Convertible Preferred Stock outstanding as of June 30, 2019 into 67,704,278 shares of Class B common stock and (iv) the issuance and sale

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of shares of Class A common stock by us in this offering. As of June 30, 2019, there were 15,634,182 shares of our Class A common stock subject to outstanding stock options with a weighted-average exercise price of $3.61 per share and 266,099 shares of Class A common stock issuable upon exercise of warrants outstanding with a weighted-average exercise price of $1.17 per share. To the extent that these outstanding stock options and warrants are ultimately exercised or the underwriters exercise their option to purchase additional shares of our Class A common stock, you will incur further dilution. See the section titled "*Dilution*" for more information.

Raising additional capital may cause dilution to our existing stockholders or restrict our operations.

We anticipate that we will seek additional capital through a combination of public and private equity offerings, debt financings, strategic partnerships and alliances and licensing arrangements in the future to fund our operations. We, and indirectly, our stockholders, will bear the cost of issuing and servicing such securities. Because our decision to issue debt or equity securities in any future offering will depend on market conditions and other factors beyond our control, we cannot predict or estimate the amount, timing or nature of any future offerings. Our decision to issue debt or equity securities will also depend on contractual, legal and other restrictions that may limit our ability to raise additional capital. For example, the terms of our Loan and Security Agreement prohibit, subject to certain exceptions, our ability to incur additional indebtedness. Further, our election to borrow up to an additional $20.0 million of term loans under the Loan and Security Agreement will obligate us to issue warrants to purchase 133,000 shares of our Class A common stock at an exercise price of $1.62 per share to the lender thereof, which will result in further dilution of your ownership interest. To the extent that we raise additional capital through the sale of equity or debt securities, your ownership interest will be diluted and the terms may include liquidation or other preferences that adversely affect your rights as a stockholder. The incurrence of indebtedness would result in increased fixed payment obligations and could involve restrictive covenants, such as limitations on our ability to incur additional debt, limitations on our ability to acquire, sell or license intellectual property rights and other operating restrictions that could adversely impact our ability to conduct our business. Certain of the foregoing transactions may require us to obtain stockholder approval, which we may not be able to obtain.

The multi-class structure of our common stock will have the effect of concentrating voting control with those stockholders who held our capital stock prior to the completion of this offering and it may depress the trading price of our Class A common stock.

Our Class A common stock, which is the stock we are offering in this offering, has one vote per share, and our Class B common stock has ten votes per share, except as otherwise required by law. Following this offering, our directors, executive officers and holders of more than 5% of our common stock, and their respective affiliates, will hold in the aggregate % of the voting power of our capital stock. Because of the ten-to-one voting ratio between our Class B common stock and Class A common stock, the holders of our Class B common stock collectively will continue to control a majority of the combined voting power of our common stock and therefore be able to control all matters submitted to our stockholders for approval. This concentrated control will limit or preclude your ability to influence corporate matters for the foreseeable future, including the election of directors, amendments of our organizational documents and any merger, consolidation, sale of all or substantially all of our assets or other major corporate transaction requiring stockholder approval. In addition, this may prevent or discourage unsolicited acquisition proposals or offers for our capital stock that you may feel are in your best interest as one of our stockholders.

Future transfers by holders of Class B common stock will generally result in those shares converting to Class A common stock, subject to limited exceptions, such as certain transfers effected for estate planning purposes where sole dispositive power and exclusive voting control with respect to the shares of Class B common stock is retained by the transferring holder and transfers between our co-founders. In addition, each outstanding share

of Class B common stock held by a stockholder who is a natural person, or held by the permitted entities of such stockholder (as described in our amended and restated certificate of incorporation), will convert automatically into one share of Class A common stock upon the death of such natural person. In the event of the death or permanent and total disability of a co-founder, shares of Class B common stock held by such co-founder or his permitted entities will convert to Class A common stock, provided that the conversion will be deferred for nine months, or up to 18 months if approved by a majority of our independent directors, following his death or permanent and total disability. Transfers between our co-founders are permitted transfers and will not result in conversion of the shares of Class B common stock that are transferred. See the section titled "Description of capital stock—Common stock—Conversion of Class B common stock" for additional information about conversions. The conversion of Class B common stock to Class A common stock will have the effect, over time, of increasing the relative voting power of those individual holders of Class B common stock who retain their shares in the long term.

In addition, in July 2017, FTSE Russell and Standard & Poor's announced that they would cease to allow most newly public companies utilizing dual or multi-class capital structures to be included in their indices. Affected indices include the Russell 2000 and the S&P 500, S&P MidCap 400, and S&P SmallCap 600, which together make up the S&P Composite 1500. Under the announced policies, our multi-class capital structure would make us ineligible for inclusion in any of these indices, and as a result, mutual funds, exchange-traded funds and other investment vehicles that attempt to passively track these indices will not be investing in our stock. These policies are new and it is as of yet unclear what effect, if any, they have had and will have on the valuations of publicly traded companies excluded from the indices, but it is possible that they may depress these valuations compared to those of other similar companies that are included.

We are an "emerging growth company" and the reduced disclosure requirements applicable to emerging growth companies may make our Class A common stock less attractive to investors.

We are an "emerging growth company", as defined in the JOBS Act. For so long as we remain an emerging growth company, we are permitted by SEC rules and plan to rely on exemptions from certain disclosure requirements that are applicable to other SEC-registered public companies that are not emerging growth companies. These exemptions include not being required to comply with the auditor attestation requirements of Section 404 of the SOX, not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements, reduced disclosure obligations regarding executive compensation and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. As a result, the information we provide stockholders will be different than the information that is available with respect to other public companies. In this prospectus, we have not included all of the executive compensation related information that would be required if we were not an emerging growth company. We cannot predict whether investors will find our Class A common stock less attractive if we rely on these exemptions. If some investors find our Class A common stock less attractive as a result, there may be a less active trading market for our Class A common stock and our stock price may be more volatile.

In addition, the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. This allows an emerging growth company to delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will not be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies. As a result, our financial statements may not be

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comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

We will incur increased costs as a result of operating as a public company and be subject to additional potential liability. Our management will be required to devote substantial time to new compliance initiatives and corporate governance practices.

As a public company, and particularly after we are no longer an emerging growth company, we will incur significant legal, accounting and other expenses that we did not incur as a private company. The Dodd-Frank Wall Street Reform and Consumer Protection Act, SOX, the listing requirements of Nasdaq and other applicable federal and Delaware rules and regulations impose various requirements on public companies, including establishment and maintenance of effective disclosure and financial controls and corporate governance practices. We expect that we will need to hire additional accounting, finance and other personnel in connection with our becoming, and our efforts to comply with the requirements of being, a public company, and our management and other personnel will need to devote a substantial amount of time towards maintaining compliance with these requirements. These requirements will increase our legal and financial compliance costs and will make some activities more time-consuming and costly.

For example, we expect that the rules and regulations applicable to us as a public company and recent trends in the insurance market make it more expensive for us to obtain director and officer liability insurance. While we will continue to evaluate options for director and officer liability insurance, we currently intend to only obtain director and officer liability coverage (commonly referred to as “Side A” coverage). This means that while our directors and officers direct insurance coverage for acts which the company is not legally required or permitted to indemnify them, the company itself will not have coverage for amounts incurred in defending, among other things, stockholder derivative or securities class action lawsuits or in the event of certain investigative actions, for amounts it must pay as a result of such suits or amounts it must pay to indemnify our directors or officers. We will in essence be self-insuring for these costs. Any costs incurred in connection with such litigation could have a material adverse effect on our business, financial condition and results of operations.

In September 2018, California enacted a law that requires publicly held companies headquartered in California to have at least one female director by the end of 2019 and at least three by the end of 2021, depending on the size of the board. The law would impose financial penalties for failure to comply. We are currently in compliance with the requirements of the law but we may incur costs associated with complying with the law in future years, including costs associated with expanding our board of directors or identifying qualified candidates for appointment to our board of directors, or financial penalties or harm to our brand and reputation if we fail to comply. We cannot predict or estimate the amount of additional costs we may incur or the timing of such costs.

Pursuant to SOX Section 404, we will be required to furnish a report by our management on our internal control over financial reporting beginning with our second filing of an Annual Report on Form 10-K with the SEC after we become a public company. However, while we remain an emerging growth company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with SOX Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants, adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. Despite our efforts, there is a risk that we will not be able to conclude, within the prescribed timeframe or at all, that our internal control over financial reporting is effective as required by SOX

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Section 404. If we identify one or more material weaknesses, it could result in an adverse reaction in the financial markets due to a loss of confidence in the reliability of our financial statements.

Additionally, we have historically operated our business as a private company. After this offering, we will be required to file with the SEC annual and quarterly information and other reports that are specified in Section 13 of the Exchange Act. We will also be required to ensure that we have the ability to prepare financial statements that are fully compliant with all SEC reporting requirements on a timely basis. We will also become subject to other reporting and corporate governance requirements, including the requirements of Nasdaq and certain provisions of SOX and the regulations promulgated thereunder, which will impose significant compliance obligations upon us. As a public company, we will, among other things:

- prepare and distribute periodic public reports and other stockholder communications in compliance with our obligations under the federal securities laws and applicable Nasdaq rules;
- create or expand the roles and duties of our board of directors and committees of the board;
- institute more comprehensive financial reporting and disclosure compliance functions;
- supplement our internal accounting, auditing and reporting function, including hiring additional staff with expertise in accounting and financial reporting for a public company;
- enhance and formalize closing procedures at the end of our accounting periods;
- enhance our internal audit and tax functions;
- enhance our investor relations function;
- establish new internal policies, including those relating to disclosure controls and procedures; and
- involve and retain to a greater degree outside counsel and accountants in the activities listed above.

We may not be successful in implementing these requirements and the significant commitment of resources required for implementing them could adversely affect our business, financial condition and results of operations. In addition, if we fail to implement the requirements with respect to our internal accounting and audit functions, our ability to report our results of operations on a timely and accurate basis could be impaired and we could suffer adverse regulatory consequences or violate the Nasdaq rules. There could also be a negative reaction in the financial markets due to a loss of investor confidence in us and the reliability of our financial statements.

The changes necessitated by becoming a public company require a significant commitment of resources and management oversight that has increased and may continue to increase our costs and might place a strain on our systems and resources. As a result, our management's attention might be diverted from other business concerns. If we fail to maintain an effective internal control environment or to comply with the numerous legal and regulatory requirements imposed on public companies, we could make material errors in, and be required to restate, our financial statements. Any such restatement could result in a loss of public confidence in the reliability of our financial statements and sanctions imposed on us by the SEC. In addition, the rules and regulations imposed on public companies are often subject to varying interpretations and, as a result, their application in practice may evolve over time as new guidance is provided by regulatory and governing bodies. This could result in continuing uncertainty regarding compliance matters and higher costs necessitated by ongoing revisions to disclosure and governance practices.

We have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

We cannot specify with certainty the particular uses of the net proceeds we will receive from this offering. Our management will have broad discretion in the application of the net proceeds, including for any of the purposes

described in the section titled "*Use of proceeds*" in this prospectus. Our management may spend a portion or all of the net proceeds from this offering in ways that our stockholders may not desire or that may not yield a favorable return. The failure by our management to apply these funds effectively could harm our business, financial condition, results of operations and prospects. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

We do not expect to pay any dividends for the foreseeable future. Investors in this offering may never obtain a return on their investment.

You should not rely on an investment in our Class A common stock to provide dividend income. We do not anticipate that we will pay any dividends to holders of our Class A common stock in the foreseeable future. Instead, we plan to retain any earnings to maintain and expand our existing operations and fund our research and development programs. In addition, our Loan and Security Agreement contains, and any future credit facility or financing we obtain may contain, terms prohibiting or limiting the amount of dividends that may be declared or paid on our Class A common stock. Accordingly, investors must rely on sales of their Class A common stock after price appreciation, which may never occur, as the only way to realize any return on their investment. As a result, investors seeking cash dividends should not purchase our Class A common stock.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect prior to the closing of this offering might discourage, delay or prevent a change in control of our company or changes in our management and, therefore, depress the trading price of our Class A common stock.

Our status as a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. In addition, our restated certificate of incorporation and restated bylaws contain provisions that may make the acquisition of our company more difficult, including the following:

- any transaction that would result in a change in control of our company requires the approval of a majority of our outstanding Class B common stock voting as a separate class;
- our multi-class common stock structure provides our holders of Class B common stock with the ability to significantly influence the outcome of matters requiring stockholder approval, even if they own significantly less than a majority of the shares of our outstanding Class A common stock and Class B common stock;
- our board of directors will be classified into three classes of directors with staggered three-year terms and directors will only be able to be removed from office for cause by the affirmative vote of holders of at least two-thirds of the voting power of our then outstanding capital stock;
- certain amendments to our amended and restated certificate of incorporation will require the approval of stockholders holding two-thirds of the voting power of our then outstanding capital stock;
- certain amendments to our amended and restated bylaws will require the approval of stockholders holding two-thirds of the voting power of our then outstanding capital stock;
- our stockholders will only be able to take action at a meeting of stockholders and will not be able to take action by written consent for any matter;
- our stockholders will be able to act by written consent only if the action is first recommended or approved by the board of directors;

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- vacancies on our board of directors will be able to be filled only by our board of directors and not by stockholders;
- only our chairman of the board of directors, chief executive officer or a majority of the board of directors are authorized to call a special meeting of stockholders;
- certain litigation against us can only be brought in Delaware;
- our restated certificate of incorporation authorizes undesignated preferred stock, the terms of which may be established and shares of which may be issued, without the approval of the holders of our capital stock; and
- advance notice procedures apply for stockholders to nominate candidates for election as directors or to bring matters before an annual meeting of stockholders.

These anti-takeover defenses could discourage, delay, or prevent a transaction involving a change in control of our company. These provisions could also discourage proxy contests and make it more difficult for stockholders to elect directors of their choosing and to cause us to take other corporate actions they desire, any of which, under certain circumstances, could limit the opportunity for our stockholders to receive a premium for their shares of our capital stock and could also affect the price that some investors are willing to pay for our Class A common stock.

Our amended and restated bylaws will designate a state or federal court located within the State of Delaware as the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to choose the judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated bylaws, which will become effective immediately prior to the completion of this offering, will provide that, unless we consent in writing to the selection of an alternative forum, the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our amended and restated bylaws or (iv) any other action asserting a claim that is governed by the internal affairs doctrine shall be a state or federal court located within the State of Delaware, in all cases subject to the court having jurisdiction over indispensable parties named as defendants. Nothing in our amended and restated bylaws will preclude stockholders that assert claims under the Securities Act or the Exchange Act from bringing such claims in state or federal court, subject to applicable law.

Any person or entity purchasing or otherwise acquiring any interest in any of our securities shall be deemed to have notice of and consented to the foregoing forum selection provisions. These exclusive-forum provisions may limit a stockholder's ability to bring a claim in a judicial forum of its choosing for disputes with us or our directors, officers, or other employees, which may discourage lawsuits against us and our directors, officers and other employees. If a court were to find either exclusive-forum provision in our amended and restated bylaws to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving the dispute in other jurisdictions, which could harm our results of operations.

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Special note regarding forward-looking statements

This prospectus contains forward-looking statements, particularly in the sections titled "*Prospectus summary*", "*Risk factors*", "*Management's discussion and analysis of financial condition and results of operations*" and "*Business*". In some cases, you can identify these statements by forward-looking words such as "anticipate", "believe", "continue", "could", "estimate", "expect", "intend", "may", "might", "plan", "potential", "predict", "should", "would" or "will", the negative of these terms and other comparable terminology. These forward-looking statements, which are subject to risks, uncertainties and assumptions about us, may include projections of our future financial performance, our future products, our technology, our potential market opportunity, our anticipated growth strategies and anticipated trends in our business.

These statements are only predictions based on our current expectations and projections about future events and trends. There are important factors that could cause our actual results, level of activity, performance or achievements to differ materially and adversely from the results, level of activity, performance or achievements expressed or implied by the forward-looking statements, including those factors discussed in the section titled "*Risk factors*". You should specifically consider the numerous risks described in the section titled "*Risk factors*". Moreover, we operate in a competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially and adversely from those contained in any forward-looking statements we may make.

Although we believe the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee future results, level of activity, performance or achievements. These statements are inherently uncertain. Except to the extent required by law, we undertake no obligation to update any of these forward-looking statements after the date of this prospectus to conform our prior statements to actual results or revised expectations or to reflect new information or the occurrence of unanticipated events. Given these risks, uncertainties and assumptions, you are cautioned not to place undue reliance on such forward-looking statements as predictions of future performance or otherwise.

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Industry and market data

Unless otherwise indicated, information contained in this prospectus concerning our industry and the markets in which we operate, including our general expectations and market position, market opportunity and market size, is based on information from various sources on assumptions that we have made that are based on such information and other similar sources and on our knowledge of, and expectations about, the markets for our products. This information involves a number of assumptions and limitations and you are cautioned not to give undue weight to such estimates. While we believe the market position, market opportunity and market size information included in this prospectus is generally reliable, such information is inherently imprecise. In addition, projections, assumptions and estimates of our future performance and the future performance of the industry in which we operate is necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including those described in the section titled "*Risk factors*" and elsewhere in this prospectus. These and other factors could cause results to differ materially from those expressed in the estimates made by independent third parties and by us.

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Use of proceeds

We estimate that the net proceeds to us from the issuance and the sale of shares of our Class A common stock in this offering will be approximately $, based on the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise their option to purchase additional shares in full, we estimate that the net proceeds to us would be approximately $, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the net proceeds that we receive from this offering by approximately $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions payable by us. Similarly, each increase or decrease of 1.0 million in the number of shares of our Class A common stock offered by us would increase or decrease, as applicable, the net proceeds that we receive from this offering by approximately $, assuming the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions payable by us.

The principal purposes of this offering are to increase our capitalization and financial flexibility, create a public market for our Class A common stock and enable access to the public equity markets for us and our stockholders.

We intend to use the net proceeds from this offering for general corporate purposes, including working capital, operating expenses and capital expenditures. Additionally, we may use a portion of the net proceeds we receive from this offering to acquire businesses, products or technologies. However, we do not have agreements or commitments for any material acquisitions at this time.

The expected use of net proceeds from this offering represents our intentions based upon our present plans and business conditions. We cannot predict with certainty all of the particular uses for the proceeds of this offering or the amounts that we will actually spend on the uses set forth above. Accordingly, our management will have significant flexibility in applying the net proceeds of this offering. The timing and amount of our actual expenditures will be based on many factors, including cash flows from operations and the anticipated growth of our business. Pending the uses described above, we intend to invest the net proceeds from this offering in short-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the United States government.

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Dividend policy

We have never declared or paid any cash dividends on our capital stock. We currently intend to retain any future earnings and do not expect to pay any dividends in the foreseeable future. Any future determination to declare cash dividends will be made at the discretion of our board of directors, subject to applicable laws, and will depend on a number of factors, including our financial condition, results of operations, capital requirements, contractual restrictions, general business conditions and other factors that our board of directors may deem relevant. In addition, the terms of our Loan and Security Agreement place certain limitations on the amount of cash dividends we can pay, even if no amounts are currently outstanding.

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Capitalization

The following table sets forth our cash and cash equivalents, and capitalization as of June 30, 2019:

- on an actual basis;
- on a pro forma basis to reflect: (i) the filing and effectiveness of our amended and restated certificate of incorporation, (ii) the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock into Class A common stock and (iii) the automatic conversion of all shares of our Convertible Preferred Stock outstanding as of June 30, 2019 into 67,704,278 shares of Class B common stock, in each case, prior to the closing of this offering and as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*"; and
- on a pro forma as adjusted basis to reflect: (i) the pro forma adjustments set forth above and (ii) the issuance and sale of shares of Class A common stock by us in this offering at an assumed initial public offering price $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The pro forma as adjusted information set forth in the table below is illustrative only and will be adjusted based on the actual initial public offering price and other terms of this offering determined at pricing. This table should be read in conjunction with the sections titled "*Selected consolidated financial data*" and "*Management's discussion and analysis of financial condition and results of operations*" and our consolidated financial statements and related notes included elsewhere in this prospectus.

	As of June 30, 2019		
(in thousands, except share and per share data)	Actual	Pro forma	Pro forma as adjusted(1)
	(unaudited)	(unaudited)	(unaudited)
Cash and cash equivalents	$ 56,034	$	$
Total debt, less current portion	$ 24,777	$	$
Convertible preferred stock, $0.00001 par value per share, 67,904,871 shares authorized, 67,704,278 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted	243,244	—	—
Stockholders' equity (deficit):			
Historical Class A common stock, $0.00001 par value per share, 75,955,000 shares authorized, 8,050,000 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted(2)	1	—	—
Historical Class B common stock, $0.00001 par value per share, 115,000,000 shares authorized, 8,095,382 shares issued and outstanding, actual; no shares authorized, issued or outstanding, pro forma and pro forma as adjusted(3)	—	—	—
Preferred stock, $0.00001 par value per share, no shares authorized, issued or outstanding, actual; 100,000,000 shares authorized, and no shares issued or outstanding, pro forma and pro forma as adjusted	—	—	—

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(in thousands, except share and per share data)	As of June 30, 2019		
	Actual	Pro forma	Pro forma as adjusted(1)
	(unaudited)	(unaudited)	(unaudited)
Class A common stock, $0.00001 par value per share, no shares authorized, issued or outstanding, actual; 1,000,000,000 shares authorized, and shares issued and outstanding pro forma and shares issued and outstanding pro forma as adjusted(2)	—		
Class B common stock, $0.00001 par value per share, no shares authorized, issued or outstanding, actual; 100,000,000 shares authorized, and 75,754,278 shares issued and outstanding, pro forma and pro forma as adjusted(3)	—		
Additional paid-in capital	17,715		
Accumulated other comprehensive loss	(34)		
Accumulated deficit	(245,630)		
Total stockholders' equity (deficit)	(227,948)		
Total capitalization	$ 40,073	$	$

(1) Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, the amount of each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us. Similarly, each increase or decrease of 1.0 million shares in the number of shares of our Class A common stock offered by us would increase or decrease, as applicable, the amount of each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' equity (deficit) and total capitalization by approximately $, assuming the assumed initial public offering price remains the same and after deducting estimated underwriting discounts and commissions payable by us.

(2) In connection with the reclassification of all outstanding shares of common stock, our Historical Class A common stock was reclassified into Class B common stock. See the section titled "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*".

(3) In connection with the reclassification of all outstanding shares of common stock, our Historical Class B common stock was reclassified into Class A common stock. See the section titled "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*".

If the underwriters exercise their option to purchase additional shares in full, each of our pro forma as adjusted cash and cash equivalents, additional paid-in capital, total stockholders' equity (deficit), total capitalization and pro forma as adjusted shares of Class A common stock outstanding as of June 30, 2019 would be $ million, $ million, $ million, $ million and shares, respectively.

The number of shares of our Class A common stock and Class B common stock issued and outstanding, pro forma and pro forma as adjusted in the table above is based on 8,095,382 shares of our Class A common stock and 75,754,278 shares of our Class B common stock (including our Convertible Preferred Stock on an as-converted basis) outstanding as of June 30, 2019 and excludes:

- 15,634,182 shares of Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2019, at a weighted-average exercise price of $3.61 per share;
- 266,099 shares of Class of A common stock issuable upon exercise of warrants outstanding as of June 30, 2019, at a weighted-average exercise price of $1.17 per share;
- 842,475 shares of Class A common stock issuable upon exercise of stock options granted after June 30, 2019, at a weighted-average exercise price of $30.00 per share; and

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- 11,000,000 shares of Class A common stock to be reserved and available for future issuance under the Omnibus Incentive Plan, which will become effective in connection with this offering, as more fully described in the section titled "*Executive compensation—Equity incentive plans*", including:
  - 1,323,858 shares of Class A common stock reserved for future grants under the 2012 Stock Plan, as of June 30, 2019, which will be added to the shares reserved under our Omnibus Incentive Plan, plus
  - any shares of Class A common stock issuable upon exercise of stock options outstanding under the 2012 Stock Plan that will be added to our Omnibus Incentive Plan available reserve upon expiration or termination of such stock options, plus
  - automatic increases in the number of shares of Class A common stock reserved for future grants pursuant to our Omnibus Incentive Plan; plus
  - 2,000,000 shares of Class A common stock to be reserved and available for future issuance under the ESPP, which will become effective in connection with this offering, as well as automatic increases in the number of shares of Class A common stock reserved for future issuance under the ESPP.

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Dilution

If you purchase shares of our Class A common stock in this offering, your ownership interest will be diluted to the extent of the difference between the initial public offering price per share of our Class A common stock in this offering and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

Our historical net tangible book value as of June 30, 2019 was $(228.5) million or $(14.16) per share of common stock. Our historical net tangible book value per share represents our tangible assets, less liabilities and Convertible Preferred Stock, divided by the aggregate number of shares of common stock outstanding as of June 30, 2019.

Our pro forma net tangible book value as of June 30, 2019 was $ million or $ per share of common stock. Our pro forma net tangible book value per share represents our tangible assets, less liabilities and Convertible Preferred Stock, divided by the aggregate number of shares of common stock outstanding as of June 30, 2019, after giving effect to: (i) the filing and effectiveness of our amended and restated certificate of incorporation, (ii) the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock into Class A common stock and (iii) the automatic conversion of all shares of our Convertible Preferred Stock outstanding into 67,704,278 shares of Class B common stock, in each case, prior to the closing of the offering and as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*".

After giving effect to the issuance and sale of shares of Class A common stock by us in this offering at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of June 30, 2019 would have been $ million or $ per share. This represents an immediate increase in pro forma net tangible book value to existing stockholders of $ per share and an immediate dilution in pro forma net tangible book value to new investors of $ per share. Dilution per share represents the difference between the price per share to be paid by new investors for the shares of Class A common stock sold in this offering and the pro forma net tangible book value per share immediately after this offering. The following table illustrates this per share dilution:

Assumed initial public offering price per share		$
Historical net tangible book value per share as of June 30, 2019	$(14.16)	
Pro forma increase in net tangible book value per share as of June 30, 2019		
Pro forma net tangible book value per share as of June 30, 2019		
Increase in pro forma net tangible book value per share attributable to new investors purchasing shares of Class A common stock in this offering		
Pro forma as adjusted net tangible book value per share		
Dilution per share to new investors participating in this offering		$

Each $1.00 increase or decrease in the assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, would increase or decrease, as applicable, our pro forma as adjusted net tangible book value per share after this offering by $ per share and the dilution in pro forma net tangible book value per share to investors participating in this offering by $ per share, assuming that the number of shares of Class A common stock offered by us, as set forth on the cover page of this prospectus, remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase or decrease of 1.0 million

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shares in the number of shares of our Class A common stock offered by us would increase or decrease, as applicable, our pro forma as adjusted net tangible book value per share after this offering by $ per share and the dilution in pro forma as adjusted net tangible book value per share to investors participating in this offering by $ per share, assuming the assumed initial public offering price remains the same, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters exercise their option to purchase additional shares in full, the pro forma as adjusted net tangible book value per share of our Class A common stock after this offering would be $ per share and the dilution in pro forma net tangible book value per share to investors in this offering would be $ per share of Class A common stock.

The following table sets forth, on a pro forma as adjusted basis, as of June 30, 2019, the number of shares of Class A common stock purchased from us, the total consideration paid, or to be paid, and the average price per share paid, or to be paid, by existing stockholders and by the new investors, at an assumed initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us:

	Shares purchased		Total consideration		Weighted-average price per share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					$
Total		100%	$	100%	

Each $1.00 increase or decrease in the assumed initial public offering price per share would increase or decrease, as applicable, the total consideration paid by new investors, total consideration paid by all stockholders and the average price per share paid by all stockholder by approximately $ million, $ million and $, respectively, assuming that the number of shares of Class A common stock offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. Similarly, each increase or decrease of 1.0 million shares in the number of shares of our Class A common stock offered by us would increase or decrease, as applicable, the total consideration paid by new investors, total consideration paid by all stockholders and the average price per share paid by all stockholders by approximately $ million, $ million and $, respectively, assuming an initial public offering price of $ per share, which is the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The foregoing tables assume no exercise by the underwriters of their option to purchase additional shares and no exercise of outstanding stock options or warrants after June 30, 2019. If the underwriters exercise their option to purchase additional shares in full, the number of shares of Class A common stock held by our existing stockholders will represent approximately % of the total number of shares of our Class A common stock outstanding after this offering; and the number of shares held by new investors will represent approximately % of the total number of shares of our Class A common stock outstanding after this offering. In addition, to the extent any outstanding stock options or warrants are exercised, investors participating in this offering will experience further dilution.

The foregoing tables and calculations (other than the historical net tangible book value calculation) are based on 8,095,382 shares of our Class A common stock and 75,754,278 shares of our Class B common stock

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(including our Convertible Preferred Stock on an as-converted basis) outstanding as of June 30, 2019 and excludes:

- 15,634,182 shares of Class A common stock issuable upon exercise of stock options outstanding as of June 30, 2019, at a weighted-average exercise price of $3.61 per share;
- 266,099 shares of Class of A common stock issuable upon exercise of warrants outstanding as of June 30, 2019, at a weighted-average exercise price of $1.17 per share;
- 842,475 shares of Class A common stock issuable upon exercise of stock options granted after June 30, 2019, at a weighted-average exercise price of $30.00 per share; and
- 11,000,000 shares of Class A common stock to be reserved and available for future issuance under the Omnibus Incentive Plan, which will become effective in connection with this offering, as more fully described in the section titled "*Executive compensation—Equity incentive plans*", including:
    - 1,323,858 shares of Class A common stock reserved for future grants under the 2012 Stock Plan, as of June 30, 2019, which will be added to the shares reserved under our Omnibus Incentive Plan, plus
    - any shares of Class A common stock issuable upon exercise of stock options outstanding under the 2012 Stock Plan that will be added to our Omnibus Incentive Plan available reserve upon expiration or termination of such stock options, plus
    - automatic increases in the number of shares of Class A common stock reserved for future grants pursuant to our Omnibus Incentive Plan; plus
    - 2,000,000 shares of Class A common stock to be reserved and available for future issuance under the ESPP, which will become effective in connection with this offering, as well as automatic increases in the number of shares of Class A common stock reserved for future issuance under the ESPP.

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Selected consolidated financial data

The following tables present our selected consolidated financial data for the years and as of the dates indicated. We have derived the selected consolidated statements of operations data for the years ended December 31, 2017 and 2018, and the selected consolidated balance sheet data as of December 31, 2017 and 2018, from our audited consolidated financial statements and related notes included elsewhere in this prospectus. We have derived the selected consolidated statements of operations data for the six months ended June 30, 2018 and 2019, and the selected consolidated balance sheet data as of June 30, 2019 from our unaudited consolidated interim financial statements and related notes included elsewhere in this prospectus. Our unaudited consolidated interim financial statements were prepared in accordance with generally accepted accounting principles in the United States ("GAAP"), on the same basis as our audited consolidated financial statements and include, in the opinion of management, all adjustments, consisting of normal recurring adjustments, that are necessary for the fair presentation of the financial information set forth in those financial statements. Our historical results are not necessarily indicative of results that may be expected in the future. You should read the following selected consolidated financial data together with our consolidated financial statements and related notes included elsewhere in this prospectus and the information in the section titled "*Management's discussion and analysis of financial condition and results of operations*".

	Year ended December 31,		Six months ended June 30,	
(in thousands, except share and per share data)	**2017**	**2018**	**2018**	**2019**
			(unaudited)	
Consolidated statements of operations data:				
Revenue	$ 71,085	$ 146,313	$ 59,152	$ 109,397
Cost of revenue(1)	10,560	28,661	8,520	28,971
Gross profit	60,525	117,652	50,632	80,426
Operating expenses:				
Research and development(1)	32,164	47,537	23,372	32,999
In-process research and development	—	62,363	6,206	—
Selling, general and administrative(1)	46,736	87,936	41,920	59,464
Accrued contingent liabilities	—	30,580	—	1,360
Total operating expenses	78,900	228,416	71,498	93,823
Loss from operations	(18,375)	(110,764)	(20,866)	(13,397)
Other income (expense):				
Interest income	308	1,024	461	505
Interest expense	(811)	(2,409)	(1,062)	(1,379)
Other income (expense), net	137	(249)	(120)	(141)
Total other income (expense)	(366)	(1,634)	(721)	(1,015)
Loss before provision for income taxes	$ (18,741)	$ (112,398)	$ (21,587)	$ (14,412)
Provision for income taxes	21	87	29	102
Net loss	$ (18,762)	$ (112,485)	$ (21,616)	$ (14,514)
Net loss per share attributable to common stockholders, basic and diluted(2)	$ (1.62)	$ (8.40)	$ (1.66)	$ (0.96)
Weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted(2)	11,587,751	13,392,273	12,985,535	15,187,258
Pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(2)		$ (1.45)		$ (0.18)
Weighted-average shares used to compute pro forma net loss per share attributable to common stockholders, basic and diluted (unaudited)(2)		77,494,992		82,891,536

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(1) Includes stock-based compensation expense as follows:

(in thousands)	Year ended December 31, 2017	Year ended December 31, 2018(1)	Six months ended June 30, 2018	Six months ended June 30, 2019
			(unaudited)	
Cost of revenue	$ 44	$ 85	$ 36	$ 90
Research and development	801	1,030	440	1,798
Selling, general and administrative	816	1,543	530	2,496
Total stock-based compensation expense	$ 1,661	$ 2,658	$ 1,006	$ 4,384

(2) See Note 2 and Note 11 to our consolidated financial statements included elsewhere in this prospectus for further details on the calculation of net loss per share attributable to common stockholders, basic and diluted, the weighted-average shares used to compute net loss per share attributable to common stockholders, basic and diluted, and unaudited pro forma information.

(in thousands)	As of December 31, 2017	As of December 31, 2018	As of June 30, 2019
			(unaudited)
Consolidated balance sheet data:			
Cash and cash equivalents	$ 47,857	$ 65,080	$ 56,034
Working capital(1)	45,966	73,874	63,999
Total assets	75,609	124,310	155,594
Total current liabilities	22,141	32,362	43,227
Total liabilities	29,704	101,053	140,298
Total convertible preferred stock	158,414	243,244	243,244
Accumulated deficit	(118,631)	(231,116)	(245,630)
Total stockholders' equity (deficit)	(112,509)	(219,987)	(227,948)

(1) Working capital is calculated as current assets less current liabilities. See our consolidated financial statements and related notes included elsewhere in this prospectus for further details regarding our current assets and current liabilities.

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Management's discussion and analysis of financial condition and results of operations

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with the section titled "Selected consolidated financial data" and the consolidated financial statements and related notes thereto included elsewhere in this prospectus. This discussion contains forward-looking statements that involve risks and uncertainties. Factors that could cause or contribute to such differences include those identified below and those in the section titled "Risk factors" and other parts of this prospectus. Our historical results are not necessarily indicative of the results that may be expected for any future period.

Overview

We are a life sciences technology company focused on building innovative products and solutions to interrogate, understand and master biological systems at resolution and scale that matches the complexity of biology. Our expanding suite of offerings leverages our cross-functional expertise across biology, chemistry, software and hardware to provide a comprehensive, dynamic and high-resolution view of complex biological systems. We have launched multiple products that enable researchers to understand and interrogate biological analytes in their full biological context. Our commercial product portfolio leverages our Chromium instruments, which we refer to as "instruments", and our proprietary microfluidic chips, slides, reagents and other consumables for both our Visium and Chromium solutions, which we refer to as "consumables". We bundle our software with these products to guide customers through the workflow, from sample preparation through analysis and visualization. Since launching our first product in mid-2015, and as of June 30, 2019, we have sold 1,284 instruments to customers around the world, including 93 of the top 100 global research institutions by publications, and 13 of the top 15 global pharmaceutical companies by 2018 revenue.

Our products cover a wide variety of applications and allow researchers to analyze biological systems at fundamental resolutions and on massive scales, such as at the single cell level for millions of cells. Our Chromium instruments and Chromium consumables are designed to work together exclusively. After buying a Chromium instrument, customers purchase consumables from us for use in their experiments. Accordingly, as the installed base of our instruments grows, we expect recurring revenue from consumable sales to become an increasingly important driver of our operating results. As such, our revenue growth is expected to outpace growth in our instrument placements as our business develops. In addition to instrument and consumable sales, we derive revenue from post-warranty service contracts for our Chromium instruments. For the year ended December 31, 2018, sales of our Chromium instruments accounted for 25% of our revenue, sales of our consumables accounted for 74% of our revenue and sales of services accounted for 1% of our revenue. For the six months ended June 30, 2019, sales of our Chromium instruments accounted for 14% of our revenue, sales of our consumables accounted for 84% of our revenue and sales of services accounted for 2% of our revenue.

We currently serve thousands of researchers in approximately 40 countries. Our customers include a range of academic, government, biopharmaceutical, biotechnology and other leading institutions around the globe. In both the year ended December 31, 2018 and the six months ended June 30, 2019, approximately 70% of our direct sales revenue came from sales to academic institutions.

As of June 30, 2019, we employed a commercial team of over 190 employees, including more than 75 commissioned sales representatives, many with Ph.D. degrees and many with significant industry experience. We follow a direct sales model in North America and certain regions of Europe, representing the majority of our revenue. We sell our products through third-party distributors in Asia, certain regions of Europe, South America, the Middle East and Africa. We currently sell our products for research use only. For the year ended December 31, 2018 and six months ended June 30, 2019, sales within North America accounted for approximately 58% and 56% of our revenue, respectively.

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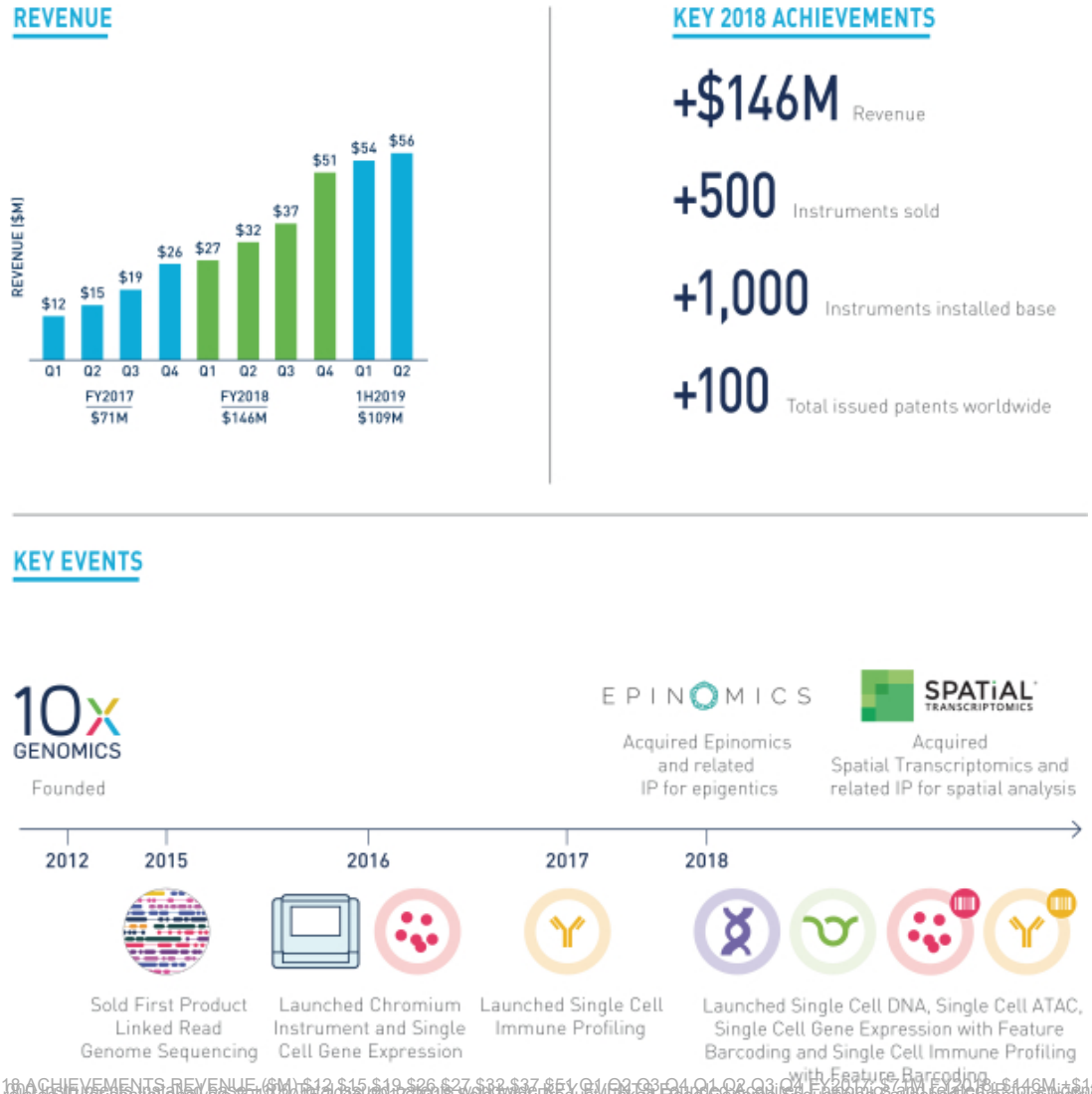
The following is our revenue for the last ten quarters, key 2018 achievements and a chronology of key events since our inception



REVENUE KEY 2018 ACHIEVEMENTS REVENUE ($M) $12 $15 $19 $26 $27 $32 $37 $51 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 FY2017 $71M FY2018 $146M 1H2019 $109M +$146M Revenue +500 Instruments sold +1,000 Instruments installed base +100 Total issued patents worldwide KEY EVENTS 10x GENOMICS Founded EPINOMICS Acquired Epinomics and related IP for epigentics SPATIAL TRANSCRIPTOMICS Acquired Spatial Transcriptomics and related IP for spatial analysis 2012 2015 2016 2017 2018 Sold First Product Linked Read Genome Sequencing Launched Chromium Instrument and Single Cell Gene Expression Launched Single Cell Immune Profiling Launched Single Cell DNA, Single Cell ATAC, Single Cell Gene Expression with Feature Barcoding and Single Cell Immune Profiling with Feature Barcoding

Revenue increased 106% to $146.3 million in the year ended December 31, 2018 as compared to $71.1 million in the prior year, and increased 85% to $109.4 million for the six months ended June 30, 2019 as compared to $59.2 million for the six months ended June 30, 2018, primarily due to the adoption of our platform by customers as reflected by the doubling in size of our installed base to more than 1,000 instruments as of December 31, 2018 and more than 1,280 instruments as of June 30, 2019, and the associated consumables pull-through on those instruments.

We focus a substantial portion of our resources on developing new products and solutions. Our research and development efforts are centered around: improving the performance of our existing assays and software, developing new Chromium solutions such as multi-omics solutions, developing our Visium platform, improving

and developing new capabilities for our Chromium platform, developing combined software and workflows across multiple solutions and investigating new technologies. We incurred research and development expenses of $32.2 and $47.5 million for the years ended December 31, 2017 and 2018, respectively, and $23.4 million and $33.0 million for the six months ended June 30, 2018 and 2019, respectively. We intend to continue to make significant investments in this area for the foreseeable future. In addition, in 2018, we made acquisitions for an aggregate purchase price of $62.4 million. See the section titled "—*Recent acquisitions*".

Our instrument manufacturing is contracted out to third-party contract manufacturers and we manufacture the majority of our consumable products in-house, with a small amount of our components outsourced to key suppliers. We have designed our operating model to be capital efficient and to scale efficiently as our product volumes grow.

To date, we have financed our operations primarily from the sale of our instruments and consumable products, the issuance and sale of our convertible preferred stock and common stock and with issuances of debt. Since our inception in 2012, we have incurred net losses in each year. Our net losses were $18.8 million and $112.5 million for the years ended December 31, 2017 and 2018, respectively, and $21.6 million and $14.5 million for the six months ended June 30, 2018 and 2019, respectively. The $14.5 million net loss included a $15.9 million accrual related to estimated royalties for ongoing litigation. The increase in our net loss for 2018 resulted substantially from charges of $62.4 million associated with intellectual property acquisitions for research and development in addition to the litigation contingency accrual of $38.0 million. The decrease in our net loss for the six months ended June 30, 2019 resulted primarily from increased revenue. As of June 30, 2019, we had an accumulated deficit of $245.6 million and cash and cash equivalents totaling $56.0 million. We expect to continue to incur significant expenses for the foreseeable future and to incur operating losses in the near term. We expect our expenses will increase substantially in connection with our ongoing activities, as we:

- attract, hire and retain qualified personnel;
- scale our technology platforms and introduce new products and services;
- protect and defend our intellectual property;
- acquire businesses or technologies; and
- invest in processes, tools and infrastructure to support the growth of our business.

Recent acquisitions

Epinomics

In March 2018, we completed the acquisition of Epinomics Inc. ("Epinomics"), a privately-held company based in California, for an all cash purchase price of $22.2 million. Epinomics' patent portfolio includes foundational intellectual property and a worldwide exclusive license relating to ATAC-seq, which supplements our existing patent portfolio and enables us to provide ATAC-seq solutions for single cell and other epigenetic applications. All of our obligations under the Epinomics acquisition agreement have been fully performed.

Spatial Transcriptomics

In November 2018, we completed the acquisition of Spatial Transcriptomics Holding AB ("Spatial Transcriptomics"), a privately-held company based in Stockholm, Sweden, for an all cash purchase price of $38.6 million. With the acquisition of Spatial Transcriptomics, we obtained intellectual property relating to the spatial interrogation of biological analytes, which we believe will open up the possibilities for discoveries in oncology, neuroscience and immunology, as well as in the broader area of biology. Pursuant to the Spatial Transcriptomics acquisition agreement, we are obligated to make contingent payments to the sellers through December 31, 2022. Aside from this obligation, all of our obligations under the Spatial Transcriptomics acquisition agreement have been fully performed. See "Business–Intellectual property" for more information regarding our contingent payment obligations.

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Prognosys

In November 2018, we completed the acquisition of a worldwide exclusive license to foundational intellectual property relating to spatial analysis technologies from Prognosys Biosciences, Inc. ("Prognosys"), for a combination of cash and common stock. All of our obligations under the Prognosys license agreement have been fully performed.

Litigation developments and product transitions

Bio-Rad 2015 litigation

In November 2018, a jury found that we willfully infringed three patents exclusively licensed to Bio-Rad Laboratories, Inc. ("Bio-Rad") and awarded Bio-Rad approximately $24.0 million in damages. In response to this award, we established an accrual of $30.6 million in November 2018 which we recorded as an operating expense for the year ended December 31, 2018 and accrued an additional $1.4 million in the first half of 2019 related to pre- and post-judgment interest, which we also recorded as an operating expense. In the fourth quarter of 2018, we began recording an accrual for estimated royalties as cost of revenue. For the year ended December 31, 2018 and the six months ended June 30, 2019 (unaudited), we accrued royalties of $7.4 million and $15.9 million, respectively. As of December 31, 2018 and June 30, 2019 (unaudited), we had accrued total amounts of $38 million and $55.3 million, respectively, related to this matter. This accrual is based on an estimated royalty rate of 15% of worldwide sales of our Chromium instruments operating our GEM microfluidic chips and associated consumables. Prior to the end of the first quarter of 2019, substantially all of our Chromium instruments and consumable sales utilized our GEM microfluidic chips. In August 2019, the Court granted Bio-Rad a permanent injunction against our GEM microfluidic chips and associated consumables that were found to infringe the Bio-Rad patents, which have historically constituted substantially all of our product sales. However, under the injunction, we are permitted to continue to sell our GEM microfluidic chips and associated consumables for use with our historical installed base of instruments provided that we pay a royalty of 15% into escrow on our net revenue related to such sales. We have appealed the injunction to the Federal Circuit and expect that it will not take effect until the Federal Circuit rules on our request for a stay of the injunction.

Neither the jury verdict nor the injunction relate to our Next GEM microfluidic chips based on our new proprietary design and associated consumables which we launched in May 2019 for three of our single cell solutions — Single Cell Gene Expression, Single Cell Immune Profiling and Single Cell ATAC. Unless the injunction relating to our GEM microfluidic chips is stayed, we will be unable to sell our Single Cell CNV and Linked-Read solutions for use on our instruments unless and until we develop a Next GEM microfluidic chip for such solutions. We believe that our Chromium solutions, when used with our Next GEM microfluidic chip, would not infringe the asserted Bio-Rad patents. We plan to gradually phase out our GEM microfluidic chips and anticipate that our Chromium products utilizing our Next GEM microfluidic chips will become an increasing percentage of our sales and will constitute substantially all of our Chromium sales by the end of 2020. We currently expect that, by the end of the third quarter of 2019, all Chromium instruments that we sell will operate exclusively with our Next GEM solutions. Until we are able to completely transition to our Next GEM microfluidic chip, our margins will be negatively impacted by any royalty obligations that result from this litigation. Furthermore, we expect to incur increased research and development expenses in the near term and increased inventory and other expenses related to the introduction of, and transition to, our Next GEM microfluidic chip. Depending upon the ultimate outcome of our appeal, our accruals may prove insufficient to cover the actual damages awarded in the case. Conversely, should we ultimately obtain a more favorable outcome in this litigation we may be able to reverse all or a portion of our litigation reserve and the related accruals.

International Trade Commission action

In a related but separate action, in September 2018, a judge of the U.S. International Trade Commission ("ITC") found that our GEM microfluidic chips infringed three Bio-Rad patents and recommended entry of an exclusion order against our GEM microfluidic chips which would prevent importation of such chips into the United States and a cease and desist order that would prevent us from selling such imported chips in the United States which have historically constituted substantially all of our product sales. The judge further found that our gel bead manufacturing microfluidic chip does not infringe any asserted claims and that our Next GEM microfluidic chip does not infringe any asserted claims. The judge's recommendations are currently under review by the ITC, which is expected to issue a Final Determination in late September 2019. The ITC's Final Determination is subject to a 60-day presidential review period. In order to allow our customers to continue their important research, we have dedicated significant resources to developing the capabilities to manufacture our microfluidic chips in the United States. Prior to the second quarter of 2019, all of our microfluidic chips were manufactured outside of the United States. We expect our United States manufacturing facilities to achieve volume production of certain of our GEM microfluidic chips accounting for the majority of our United States consumable revenue beginning in the fourth quarter of 2019. We do not expect the transition to manufacturing our microfluidic chips in the United States to have a material impact on our margins.

The timing of the incurrence of legal expenses relating to pending litigation is difficult to predict and the outcome of litigation is inherently uncertain. If one or more legal matters were resolved against us in a reporting period for amounts in excess of management's expectations, our financial condition and operating results for that reporting period could be materially adversely affected. In addition, changes to the scheduling of significant events, such as trial dates, for pending litigation can result in the incurrence of significant legal expenses during periods in which such expenses were not expected, which could materially and adversely impact our results of operations for such reporting period. Finally, the achievement of certain litigation milestones, outcomes or events could trigger the payment of contingent payments which could significantly impact our financial results in any given period. Such events are inherently difficult to predict.

See the sections titled "*Risk factors—Risks related to litigation and our intellectual property*" and "*Business—Legal proceedings*" for more information regarding these matters.

Key business metrics

We regularly review a number of operating and financial metrics, including the following key business metrics, to evaluate our business, measure our performance, identify trends affecting our business, formulate financial projections and make strategic decisions. We believe that the following metrics are representative of our current business; however, we anticipate these may change or may be substituted for additional or different metrics as our business grows and as we introduce new products.

Instrument installed base

	As of December 31,		As of June 30,	
	2017	**2018**	**2018**	**2019**
Instrument installed base	491	1,021	701	1,284

Our products are sold to academic, government, biopharmaceutical, biotechnology and other leading institutions around the globe. Our Chromium Controller instrument is user installable and does not require in-person training. We expect our Chromium Connect instrument to require installation and we expect to offer in-person training in its use. We believe the instrument installed base is one of the indicators of our ability to drive customer adoption of our products.

We define the instrument installed base as the cumulative number of Chromium instruments sold since inception.

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Consumable pull-through per instrument

(in thousands)	Year ended December 31, 2017	Year ended December 31, 2018	Six months ended June 30, 2018	Six months ended June 30, 2019
Consumable pull-through per instrument	$ 140	$ 148	$ 72	$ 81

Our consumables portfolio includes proprietary microfluidic chips, slides, reagents and other consumables for both our Visium and Chromium solutions. Our Chromium instruments and Chromium consumables are designed to work together exclusively. This Chromium closed-system model generates recurring revenue from each instrument we sell. We believe that quarterly consumable pull-through per instrument is an indicator of our ability to generate future consumable revenue and the rate of customer adoption of our new applications.

We define consumable pull-through per instrument as the total consumables revenue in the given quarter divided by the average instrument installed base during that quarter. We calculate the average instrument installed base for a given quarter using the instrument installed base as of the last day of the prior quarter and the instrument installed base as of the last day of the given quarter. We also calculate a year-to-date consumable pull-through per instrument figure by summing the quarterly pull-through for the quarters in a given year. The figures in the table above represent the year-to-date consumable pull-through per instrument for the years ended December 31, 2017 and 2018 and the six months ended June 30, 2018 and 2019.

Key factors affecting our performance

We believe that our financial performance has been and in the foreseeable future will continue to be primarily driven by the following factors. While each of these factors presents significant opportunities for our business, they also pose important challenges that we must successfully address in order to sustain our growth and improve our results of operations. Our ability to successfully address the factors below is subject to various risks and uncertainties, including those described under the heading "*Risk factors*".

Instrument sales

Our financial performance has largely been driven by, and in the future will continue to be impacted by, the rate of sales of our Chromium instruments. Management focuses on instrument sales as an indicator of current business success and a leading indicator of likely future sales of consumables. We expect our instrument sales to continue to grow as we increase penetration in our existing markets and expand into, or offer new features and solutions that appeal to, new markets.

We plan to grow our instrument sales in the coming years through multiple strategies including expanding our sales efforts globally and continuing to enhance the underlying technology and applications for life sciences research. As part of this strategy and in an effort to increase the rate of sales of our instruments, we increased our sales force by 144% from January 1, 2018 through June 30, 2019, with 78 commissionable sales representatives as of June 30, 2019. We regularly solicit feedback from our customers and focus our research and development efforts on enhancing the Chromium Controller instrument and enabling its ability to use additional applications that address their needs, which we believe in turn helps to drive additional sales of our instruments and consumables. We are developing our Chromium Connect instrument, which is an automated version of our current Chromium Controller instrument, with a targeted release in 2020. We believe the automated features of the Chromium Connect will increase our addressable market by increasing utilization by biopharmaceutical customers.

Our sales process varies considerably depending upon the type of customer to whom we are selling. Our sales process with small laboratories and individual researchers is often short, and in some cases, we receive

purchase orders from these customers in under a month. Our sales process with other institutions can be longer with most customers submitting purchase orders within six months. Given the variability of our sales cycle, we have in the past experienced, and likely will in the future experience, fluctuations in our instrument sales on a period-to-period basis.

Recurring consumable revenue

We regularly assess trends relating to recurring consumable revenue based on our product offerings, our customer base and our understanding of how our customers use our products. There may be quarterly variability in our consumable revenue and in the relative revenue contribution of our product offerings. For example, while revenue generated from sales of our Single Cell Gene Expression consumables accounted for approximately half of our revenue for each of the years ended December 31, 2017 and 2018 and for the six months ended June 30, 2019, we expect the revenue contribution from these and other consumable products to vary on a quarterly basis due to, among other factors, our introduction of enhanced features and additional solutions. Funding cycles of our customers vary leading to seasonality in their consumables order patterns. For example, a significant portion of our current customers are reliant on government funding and research grants. Our current customer base, a portion of which have budget cycles that typically expire at year end, exhibits seasonality resulting in a higher consumable pull-through per instrument in the fourth quarter relative to the first three quarters of the year. As our instrument installed base expands, consumables revenue on an absolute basis is expected to increase and over time should be an increasingly important contributor to our revenue.

Our current customer base includes customers who purchase consumables for use on a shared or centralized instrument. We refer to customers who purchase consumables but do not own an instrument as “halo users”. For each of the years ended December 31, 2017 and 2018 and for the six months ended June 30, 2019, halo users represented approximately half of our revenue from sales of consumables. Halo users, as well as the future introduction of consumables that may not use instruments, such as our recently announced Visium solution, or Chromium instruments that are expected to use a greater amount of consumables, such as our Chromium Connect instrument, could reduce the utility of this metric and make it difficult to compare consumable pull-through per instrument metrics over time.

We expect our annual consumable pull-through per instrument to be relatively stable as the instrument installed base increases. Our expansion into new markets with less experienced users could adversely impact average pull-through, but we expect the introduction of our Visium products as well as the release of new products and applications for our Chromium instruments to increase consumable pull-through per instrument and offset these declines. We will initially report our Visium product revenue as part of consumable revenue and include it in the average pull-through per instrument calculation. Even though Visium is not processed through a Chromium instrument, we will sell the product primarily to Chromium instrument users and view it as pull-through from a business perspective.

Revenue mix and gross margin

Our revenue is derived from sales of our instruments, consumables and service. There will be fluctuations in mix between instruments and consumables from period to period. Over time, as our instrument installed base grows and our Visium products are introduced, we expect consumables revenue to constitute a larger percentage of revenue. In addition, our margins are higher for those instruments and consumables that we sell directly to customers as compared to those that we sell through distributors. While we expect the mix of direct sales as compared to sales through distributors to remain relatively constant in the near term, we are currently evaluating increasing our direct sales capabilities in certain geographies.

From the fourth quarter of 2016 to the first quarter of 2019, we offered two versions of the Chromium Controller, one at a $125,000 list price with firmware that enabled the use of all our Chromium consumables and another at a

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$75,000 list price with firmware that enabled the use of only our Single Cell Chromium consumables. Beginning in the first quarter of 2019, we standardized our instrument offering on the fully-enabled Chromium Controller with a list price of $75,000 and as a result our Chromium Controller average selling price decreased in the first half of 2019 from those realized in 2017 and 2018. The list prices of our consumables vary by solution. Future instrument and consumable selling prices and gross margins may fluctuate due to a variety of factors, including the introduction by others of competing products and solutions or the attempted integration by third-parties of capabilities similar to ours into their existing products, such as sequencers. We aim to mitigate downward pressure on our average selling prices by increasing the value proposition offered by our instruments and consumables, primarily by, for example, expanding the applications for our instruments and increasing the quantity and quality of data that can be obtained using our consumables.

In the near term, we expect our expansion of manufacturing, warehousing and product distribution facilities, and the litigation described above under "*—Litigation developments and product transitions*", to have the greatest impact on our margins. In addition to the impact of competing products entering the market, the future margin profiles of our instruments and consumables will depend upon the outcome of such litigation, any royalties we are required to pay and the royalty rates and products to which such royalties apply.

Continued investment in growth

Our significant revenue growth has been driven by rapid innovation towards novel solutions that command price premiums and quick adoption of our solutions by our customer base. In 2018 alone, we introduced six new products or updates to existing products. We intend to continue to make focused investments to increase revenue and scale operations to support the growth of our business and therefore expect expenses in this area to increase. We have invested, and will continue to invest, significantly in our manufacturing capabilities and commercial infrastructure. The transition to our new Pleasanton global headquarters and research and development center in 2019 will help us achieve these goals in the near term by providing additional manufacturing, research and development and general office space. We plan to further invest in research and development as we hire employees with the necessary scientific and technical backgrounds to enhance our existing products and help us bring new products to market, and expect to incur additional research and development expenses and higher stock-based compensation expenses as a result. We also plan to invest in sales and marketing activities, expect to incur additional general and administrative expenses and to have higher stock-based compensation expenses as we support our growth and our transition to becoming a publicly traded company. As cost of revenue, operating expenses and capital expenditures fluctuate over time, we may experience short-term, negative impacts to our results of operations and cash flows, but we are undertaking such investments in the belief that they will contribute to long-term growth.

Acquisitions of key technologies

We have made, and intend to continue to make, investments that meet management's criteria to expand or add key technologies that we believe will facilitate the commercialization of new products in the future. Such investments could take the form of an asset acquisition, the acquisition of a business or the exclusive or non-exclusive license of patented technology. Any such acquisitions we make may affect our future financial results. For example, our acquisitions of Spatial Transcriptomics and Epinomics were largely comprised of purchases of intellectual property which were expensed as in-process research and development in the quarter during which such acquisitions occurred. While we have not previously entered into material joint-development, partnership or joint-venture agreements, we may in the future decide to do so and any such arrangements may limit our rights and the commercial opportunities of any jointly-developed technology.

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Components of results of operations

Revenue

We generate virtually all of our revenue through the sale of our instruments and consumables to customers. We also generate a small portion of our revenue from instrument service agreements which relate to extended warranties. Our revenue is subject to fluctuation based on the foreign currency in which our products are sold, principally for sales denominated in the euro.

Revenue from consumables is largely driven by the size of our instrument installed base and the volume of consumables sold per instrument. Our instruments and consumables are generally sold without the right of return. Revenue is recognized as instruments and consumables are shipped. Revenue is recognized net of any sales incentive, distributor rebates and commissions and any taxes collected from customers. Some of our recently announced products, such as our Chromium Connect instrument, may result in our recognizing revenue with respect to such products upon installation rather than upon shipment. Instrument service agreements are typically entered into for a one-year term, with the coverage period beginning after the expiration of the standard one-year warranty period. Revenue from the sale of instrument service agreements are recognized ratably over the coverage period.

Cost of revenue, gross profit and gross margin

Cost of revenue. Cost of revenue primarily consists of manufacturing costs incurred in the production process including personnel and related costs, costs of component materials, labor and overhead, packaging and delivery costs and allocated costs including facilities and information technology. We plan to hire additional employees as well as expand our manufacturing, warehousing and product distribution facilities, including increasing manufacturing automation to support our growth. In addition, cost of revenue includes royalty costs for licensed technologies included in our products, warranty costs, provisions for slow-moving and obsolete inventory and personnel and related costs and component costs incurred in connection with our obligations under our instrument service agreements. Beginning with the three months ended December 31, 2018, we began recording royalty accruals relating to sales of our GEM microfluidic chips and associated consumables, which are the subject of the Bio-Rad litigation, as cost of revenue. We expect cost of revenue to increase in absolute dollars in future periods.

Gross profit/gross margin. Gross profit is calculated as revenue less cost of revenue. Gross margin is gross profit expressed as a percentage of revenue. Our gross profit in future periods will depend on a variety of factors, including: market conditions that may impact our pricing; sales mix changes among consumables, instruments and services; product mix changes between established products and new products; excess and obsolete inventories; royalties; our cost structure for manufacturing operations relative to volume; and product warranty obligations. We expect an increase in absolute dollars of both revenue and cost of revenue; however, we expect gross margins to remain relatively constant in the near term as result of the royalty accrual related to litigation. As we transition customers to our Next GEM microfluidic chips, we expect our gross margins to increase from these levels, as the percentage of our revenue attributable to our Next GEM microfluidic chips increases. Further developments in our litigation with Bio-Rad could have a material impact on our gross margins in the near term and potentially beyond. See the section titled "—*Litigation developments and product transitions*".

Operating expenses

Research and development. Research and development expense primarily consists of personnel and related costs, independent contractor costs, laboratory supplies, equipment maintenance prototype and materials expenses, amortization of developed technology and intangibles and allocated costs including facilities and information technology.

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We plan to continue to invest in our research and development efforts, including hiring additional employees, to enhance existing products and develop new products. We expect allocated facilities costs to increase in the periods following the transition to our global headquarters and research and development center in Pleasanton, California in July 2019 and the expected implementation of a new enterprise resource planning system in 2020. We expect research and development expense will increase in absolute dollars in future periods and vary from period to period as a percentage of revenue.

In-process research and development. In-process research and development consists of costs incurred to acquire intellectual property for research and development. We expect these costs to be recognized only in periods during which we complete an acquisition of assets comprised in whole or part of intellectual property for research and development. While we periodically evaluate acquisitions of this nature from time to time, we have no definitive agreements currently in place to acquire additional intellectual property for research and development.

Selling, general and administrative. Selling, general and administrative expense primarily consists of costs related to the selling and marketing of our products, including sales incentives and advertising expenses and costs associated with our finance, accounting, legal (excluding accrued contingent liabilities), human resources and administrative personnel. Related costs associated with these functions, such as attorney and accounting fees, recruiting services, administrative services, insurance, public relations and communication activities, marketing programs and trade show appearances, travel, customer service costs and allocated costs including facilities and information technology, are also included in selling, general and administrative expenses.

We expect to incur additional selling, general and administrative expenses due to continued investment in our sales, marketing and customer service efforts to support the anticipated growth of our business. We also expect increased infrastructure costs, as well as increased costs for accounting, human resources, legal, insurance, investor relations and other costs associated with becoming a public company. We expect to continue our hiring, in the United States as well as internationally, in all these areas in line with the continued growth of our business. We also expect allocated facilities costs to increase in the periods following the transition to our global headquarters and research and development center in Pleasanton, California in July 2019 and allocated information technology costs to increase following the expected implementation of a new enterprise resource planning system in 2020. We expect selling, general and administrative expenses to vary from period to period as a percentage of revenue, increase in absolute dollars in future periods and decrease as a percentage of revenue.

We expect our stock-based compensation expense allocated to cost of revenue, research and development expenses and selling, general and administrative expenses to increase in absolute dollars.

Accrued contingent liabilities

Accrued contingent liabilities is comprised of changes in our litigation reserve, primarily relating to our litigation with Bio-Rad. The litigation reserve currently consists of accruals we make for our estimated losses in these pending legal proceedings. We record a liability when it is probable that a loss has been incurred and the amount is reasonably estimable, the determination of which requires significant judgment. Changes in the reserve are made as we change our estimates or make payments in damages or settlement. In 2018, we took a $30.6 million charge to reflect our best estimate of loss in resolving our ongoing disputes. In the six months ended June 30, 2019, we recorded an additional $1.4 million charge related to additional pre- and post- judgment interest. Beginning with the three months ended December 31, 2018, we began recording an accrual for estimated royalties as cost of revenue. For the year ended December 31, 2018 and the six months ended June 30, 2019 (unaudited), we accrued royalties of $7.4 million and $15.9 million, respectively. As of December 31, 2018 and June 30, 2019 (unaudited), we had accrued total amounts of $38 million and

$55.3 million, respectively, related to this matter. Should we ultimately obtain a more favorable outcome in this litigation any reversal of the accrual related to the litigation would be reflected as a change to this item in the period in which it occurs. Any reversal for amounts recorded as estimated royalty accruals would be credited to our cost of revenue in such period. See the section titled "*—Litigation developments and product transactions*".

Interest income

Interest income consists of interest earned on our cash and cash equivalents which are invested in bank deposit and in money market funds.

Interest expense

Interest expense consists of interest on our outstanding debt. See the section titled "*—Contractual obligations and commitments*".

Other income (expense), net

Other income (expense), net primarily consists of realized and unrealized gains and losses related to foreign exchange rate remeasurements recorded from consolidating our foreign subsidiaries each period-end.

Provision for income taxes

Our provision for income taxes consists primarily of foreign taxes and state minimum taxes in the United States. As we expand the scale and scope of our international business activities, any changes in the United States and foreign taxation of such activities may increase our overall provision for income taxes in the future.

As of December 31, 2018, we had federal net operating loss carryforwards ("NOLs") of approximately $116.1 million and federal tax credit carryforwards of approximately $8.3 million. Our federal NOLs generated after January 1, 2018, which total $5.5 million, are carried forward indefinitely, while all of our other federal NOLs expire beginning in 2032. As of December 31, 2018, we had state NOLs of approximately $93.5 million, which expire beginning in 2032. In addition, we had state tax credit carryforwards of approximately $7.9 million, which do not expire. Our ability to utilize such carryforwards for income tax savings is subject to certain conditions and may be subject to certain limitations in the future due to ownership changes, if any, as defined by rules enacted with the Tax Cuts and Jobs Act of 2017. As such, there can be no assurance that we will be able to utilize such carryforwards. We have experienced a history of losses and a lack of future taxable income would adversely affect our ability to utilize these NOLs and research and development credit carryforwards. We currently maintain a full valuation allowance against these tax assets.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the "Code"), if a corporation undergoes an "ownership change", the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change attributes, such as research tax credits, to offset its post-change income may be limited. In general, an "ownership change" will occur if there is a cumulative change in our ownership by "5% shareholders" that exceeds 50 percentage points over a rolling three-year period. Similar rules may apply under state tax laws. We completed a study in early 2019 to determine whether an ownership change had occurred under Section 382 or 383 of the Code as of December 31, 2018, and we determined at that time that an ownership change occurred in 2013. As a result, our net operating losses generated through November 1, 2013 may be subject to limitation under Section 382 of the Code. The amount of pre-change loss carryforwards which may be subject to this limitation is $4.8 million. Our ability to use net operating loss carry forwards, research and development credit carryforwards and other tax attributes to reduce future taxable income and liabilities may be subject to limitations based on the ownership change in 2013, possible changes since the completion of the study or as a result of this offering. As a result, if we earn net taxable income, our ability to use our pre-change net operating loss carryforwards or other pre-change tax attributes to offset United States federal

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and state taxable income may still be subject to limitations, which could potentially result in increased future tax liability to us.

Results of operations

The results of operations presented below should be reviewed in conjunction with the consolidated financial statements and related notes included elsewhere in this prospectus. The following table sets forth our consolidated results of operations data for the periods presented:

(in thousands)	Year ended December 31, 2017	Year ended December 31, 2018	Six months ended June 30, 2018	Six months ended June 30, 2019
			(unaudited)	
Revenue	$ 71,085	$ 146,313	$ 59,152	$ 109,397
Cost of revenue(1)	10,560	28,661	8,520	28,971
Gross profit	60,525	117,652	50,632	80,426
Operating expenses:				
Research and development(1)	32,164	47,537	23,372	32,999
In-process research and development	—	62,363	6,206	—
Selling, general and administrative(1)	46,736	87,936	41,920	59,464
Accrued contingent liabilities	—	30,580	—	1,360
Total operating expenses	78,900	228,416	71,498	93,823
Loss from operations	(18,375)	(110,764)	(20,866)	(13,397)
Other income (expense):				
Interest income	308	1,024	461	505
Interest expense	(811)	(2,409)	(1,062)	(1,379)
Other income (expense), net	137	(249)	(120)	(141)
Total other income (expense)	(366)	(1,634)	(721)	(1,015)
Loss before provision for income taxes	$ (18,741)	$ (112,398)	$ (21,587)	$ (14,412)
Provision for income taxes	21	87	29	102
Net loss	$ (18,762)	$ (112,485)	$ (21,616)	$ (14,514)

(1) Includes stock-based compensation expense as follows:

(in thousands)	Year ended December 31, 2017	Year ended December 31, 2018	Six months ended June 30, 2018	Six months ended June 30, 2019
			(unaudited)	
Cost of revenue	$ 44	$ 85	$ 36	$ 90
Research and development	801	1,030	440	1,798
Selling, general and administrative	816	1,543	530	2,496
Total stock-based compensation expense	$ 1,661	$ 2,658	$ 1,006	$ 4,384

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The following table sets forth our consolidated results of operations data as a percentage of revenue for the periods presented:

	Year ended December 31,		Six months ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Revenue	100.0%	100.0%	100.0%	100.0%
Cost of revenue(1)	14.9%	19.6%	14.4%	26.5%
Gross profit	85.1%	80.4%	85.6%	73.5%
Operating expenses:				
Research and development(1)	45.3%	32.5%	39.5%	30.2%
In-process research and development	—	42.6%	10.5%	—
Selling, general and administrative(1)	65.7%	60.1%	70.9%	54.4%
Accrued contingent liabilities	—	20.9%	—	1.2%
Total operating expenses	111.0%	156.1%	120.9%	85.8%
Loss from operations	(25.9)%	(75.7)%	(35.3)%	(12.3)%
Other income (expense):				
Interest income	0.4%	0.7%	0.8%	0.5%
Interest expense	(1.1)%	(1.6)%	(1.8)%	(1.3)%
Other income (expense), net	0.2%	(0.2)%	(0.2)%	(0.1)%
Total other income (expense)	(0.5)%	(1.1)%	(1.2)%	(0.9)%
Loss before provision for income taxes	(26.4)%	(76.8)%	(36.5)%	(13.2)%
Provision for income taxes	0%	0.1%	0%	0.1%
Net loss	(26.4)%	(76.9)%	(36.5)%	(13.3)%

(1) Includes stock-based compensation expense as follows:

	Year ended December 31,		Six months ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Cost of revenue	0.1%	0.1%	0.1%	0.1%
Research and development	1.1%	0.7%	0.7%	1.6%
Selling, general and administrative	1.1%	1.0%	0.9%	2.3%
Total stock-based compensation expense	2.3%	1.8%	1.7%	4.0%

Comparison of six months ended June 30, 2018 and 2019

Revenue

	Six months ended June 30,		Change	
(dollars in thousands)	2018	2019	$	%
	(unaudited)			
Revenue	$ 59,152	$ 109,397	$50,245	85%

Revenue increased $50.2 million, or 85%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. The increase was driven primarily by an increase in consumables revenue. Consumables revenue increased $49.9 million, or 117%, to $92.4 million for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. $39.5 million of the increase in consumables revenue was due to growth in the instrument installed base and $10.4 million of the increase was due to increased pull-through per instrument driven by new product introductions and updates to existing products.

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Instrument revenue decreased $0.7 million, or 5%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018 due to lower average selling prices, partially offset by higher volumes of instruments sold. The number of instruments sold during the six months ended June 30, 2019 was 263 units, an increase of 25% as compared to the prior year, resulting in an ending installed base of 1,284 instruments. The Chromium Controller average selling price decreased by 24% from the six months ended June 30, 2018, contributing to the $0.7 million decrease in instruments revenue. The first quarter list price reduction for our fully-enabled Chromium Controller and various discount incentives to drive product adoption contributed to a $4.7 million decrease in revenue which was largely offset by $4.0 million of incremental unit sales.

Cost of revenue, gross profit and gross margin

	Six months ended June 30,		Change	
(dollars in thousands)	**2018**	**2019**	**$**	**%**
	(unaudited)			
Cost of revenue	$ 8,520	$ 28,971	$20,451	240%
Gross profit	$ 50,632	$ 80,426	$29,794	59%
Gross margin	86%	74%		

Cost of revenue increased $20.5 million, or 240%, in the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. In addition to higher cost of sales in line with revenue growth, the increase was primarily due to additional accrued royalties of $15.9 million related to the judgment in the Bio-Rad litigation.

Gross profit increased $29.8 million, or 59%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018, primarily due to increased revenue partially offset by additional accrued royalties. Gross margin percentage decreased by 12 points for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018, driven almost exclusively by higher accrued royalties in the six months ended June 30, 2019.

Operating expenses

	Six months ended June 30,		Change	
(dollars in thousands)	**2018**	**2019**	**$**	**%**
	(unaudited)			
Research and development	$ 23,372	$ 32,999	$ 9,627	41%
In-process research and development	6,206	—	(6,206)	N/M
Selling, general and administrative	41,920	59,464	17,544	42%
Accrued contingent liabilities	—	1,360	1,360	N/M
Total operating expenses	$ 71,498	$ 93,823	$22,325	31%

N/M: result not meaningful.

Research and development expense increased $9.6 million, or 41%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. The increase was primarily driven by an increase in personnel expenses of $5.8 million and laboratory materials and supplies expenses of $2.1 million, which were attributable to an increase in headcount and expenses supporting our continued research and development efforts to enhance our existing products and develop new products.

In-process research and development expense for the six months ended June 30, 2018 relates to intellectual property we purchased in connection with our acquisition of Epinomics. There were no similar purchases in the six months ended June 30, 2019. See the section titled "*—Recent acquisitions*".

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Selling, general and administrative expenses increased $17.5 million, or 42%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. The increase in expenses was primarily driven by an increase in personnel expenses of $12.8 million to support our future sales growth and the overall expansion of our operations and increased allocated costs of $4.0 million for facilities with the transition to our global headquarters.

Accrued contingent liabilities consisted of $1.4 million of expenses for pre- and post-judgment interest relating to the litigation with Bio-Rad, for which we established an accrual in November 2018. There was no similar accrual in the six months ended June 30, 2018.

Other income (expense), net

	Six months ended June 30,		Change	
(dollars in thousands)	**2018**	**2019**	**$**	**%**
	(unaudited)			
Interest income	$ 461	$ 505	$ 44	10%
Interest expense	(1,062)	(1,379)	(317)	30%
Other income (expense), net	(120)	(141)	(21)	18%
Total other income (expense), net	$ (721)	$ (1,015)	$ (294)	41%

Interest income increased $44,000, or 10%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. The increase was driven primarily by higher cash and cash-equivalent balances in interest bearing accounts along with increased yields on such balances.

Interest expense increased $0.3 million, or 30%, for the six months ended June 30, 2019 as compared to the six months ended June 30, 2018. The increase was driven primarily by higher outstanding term loan borrowings in 2018 following the refinancing of our previous loan and security agreement in February 2018 and increased interest rates.

The change in other income (expense), net during the six months ended June 30, 2019 was driven by realized and unrealized losses from foreign currency rate measurement fluctuations. Foreign currency losses increased compared to the six months ended June 30, 2018 as a result of the overall strengthening of the U.S. dollar when compared to the foreign currencies in which we operate.

Comparison of years ended December 31, 2017 and 2018

Revenue

	Year ended December 31,		Change	
(dollars in thousands)	**2017**	**2018**	**$**	**%**
Revenue	$ 71,085	$ 146,313	$ 75,228	106%

Revenue increased $75.2 million, or 106%, for the year ended December 31, 2018 as compared to the prior year. The increase was driven primarily by an increase in consumables revenue. Consumables revenue increased $61.3 million, or 133%, to $107.5 million for the year ended December 31, 2018 as compared to the prior year. $54.9 million of the increase in consumables revenue was due to growth in the instrument installed base and $6.4 million of the increase was due to increased pull-through per instrument driven by new product introductions and updates to existing products.

Instrument revenue increased $12.1 million, or 49%, for the year ended December 31, 2018 as compared to the prior year due to higher volumes of instruments sold, partially offset by lower average selling prices. The number

of instruments sold during the year ended December 31, 2018 was 530 units, an increase of 74% as compared to the prior year, resulting in an ending installed base of 1,021 instruments. The Chromium Controller average selling price decreased by 14% from the prior year, contributing to the $6.0 million decrease in instruments revenue. The incremental discounts offered to drive product adoption resulted in $4.4 million of this decrease in instrument revenue and the shift towards the version of the Chromium Controller with firmware that enabled the use of only our Single Cell Chromium Consumables, which was offered at a lower price than the fully-enabled version, resulted in $1.6 million of this decrease in instrument revenue.

Cost of revenue, gross profit and gross margin

	Year ended December 31,		Change	
(dollars in thousands)	**2017**	**2018**	**$**	**%**
Cost of revenue	$ 10,560	$ 28,661	$18,101	171%
Gross profit	$ 60,525	$ 117,652	$57,127	94%
Gross margin	85%	80%		

Cost of revenue increased $18.1 million, or 171%, for the year ended December 31, 2018 as compared to the prior year. In addition to higher cost of sales in line with revenue growth, the increase was primarily due to additional royalties of $7.4 million related to the Bio-Rad litigation which we began accruing in the fourth quarter of 2018, higher inventory reserves of $1.2 million as we transitioned to newer versions of our products and higher warranty-related expenses of $1.2 million.

Gross profit increased $57.1 million, or 94%, for the year ended December 31, 2018 as compared to the prior year, primarily due to increased revenue partially offset by additional accrued royalties. Gross margin percentage decreased by 5 points for the year ended December 31, 2018 as compared to the prior year, driven primarily by accrued royalties in the fourth quarter of 2018.

Operating expenses

	Year ended December 31,		Change	
(dollars in thousands)	**2017**	**2018**	**$**	**%**
Research and development	$ 32,164	$ 47,537	$ 15,373	48%
In-process research and development	—	62,363	62,363	—
Selling, general and administrative	46,736	87,936	41,200	88%
Accrued contingent liabilities	—	30,580	30,580	—
Total operating expenses	$ 78,900	$ 228,416	$149,516	190%

Research and development expense increased $15.4 million, or 48%, for the year ended December 31, 2018 as compared to the prior year. The increase was primarily driven by an increase in personnel expenses of $7.8 million and laboratory materials and supplies expenses of $4.4 million, which were attributable to an increase in headcount and expenses supporting our continued research and development efforts to enhance our existing products and develop new products.

In-process research and development expense relates to intellectual property we purchased in 2018 in connection with our acquisitions of Spatial Transcriptomics and Epinomics and our acquisition of an exclusive license to certain intellectual property from Prognosys, in each case to be used as part of our research and development efforts to enhance our existing products and develop new products. There were no similar purchases in 2017. See the section titled "—*Recent acquisitions*".

Selling, general and administrative expenses increased $41.2 million, or 88%, for the year ended December 31, 2018 as compared to the prior year. The increase in expenses was primarily driven by an increase in personnel

expenses of $15.0 million to support our sales growth and the overall expansion of our operations and increased outside legal fees of $16.5 million.

Accrued contingent liabilities consisted of $30.6 million of expenses relating to the litigation with Bio-Rad, for which we established an accrual in November 2018. There was no similar accrual in 2017.

Other income (expense), net

	Year ended December 31,		Change	
(dollars in thousands)	**2017**	**2018**	**$**	**%**
Interest income	$ 308	$ 1,024	$ 716	N/M
Interest expense	(811)	(2,409)	(1,598)	N/M
Other income (expense), net	137	(249)	(386)	N/M
Total other income (expense), net	$ (366)	$ (1,634)	$(1,268)	N/M

N/M: result not meaningful.

Interest income increased $0.7 million for the year ended December 31, 2018 as compared to the prior year. The increase was driven primarily by higher cash and cash-equivalent balances in interest bearing accounts along with increased yields on such balances.

Interest expense increased $1.6 million for the year ended December 31, 2018 as compared to the prior year. The increase was driven primarily by higher outstanding term loan borrowings in 2018 following the refinancing of our previous loan and security agreement in February 2018 and increased interest rates.

The change in other income (expense), net during the year ended December 31, 2018 was driven by realized and unrealized losses from foreign currency rate measurement fluctuations. Foreign currency losses increased compared to the prior year as a result of the overall strengthening of the U.S. dollar when compared to the foreign currencies in which we operate.

Quarterly results of operations

The following tables set forth our selected unaudited quarterly statements of operations data for each of the ten quarters in the period ended June 30, 2019. The information for each of these quarters has been prepared in accordance with GAAP, on the same basis as our audited consolidated financial statements and include, in the opinion of management, all adjustments, consisting of normal recurring adjustments, that are necessary for the fair presentation of the results of operations for these periods. This data should be read in conjunction with the consolidated financial statements and related notes included elsewhere in this prospectus. These quarterly results of operations are not necessarily indicative of the results we may achieve in any future period.

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The following table sets forth our selected unaudited quarterly consolidated statements of operations data for the periods presented:

	Three months ended									
(in thousands)	Mar. 31, 2017	June 30, 2017	Sept. 30, 2017	Dec. 31, 2017	Mar. 31, 2018	June 30, 2018	Sept. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	June 30, 2019
	(unaudited)									
Revenue	$ 12,020	$ 14,901	$ 18,541	$ 25,623	$ 27,408	$ 31,744	$ 36,607	$ 50,554	$ 53,578	$ 55,819
Cost of revenue(1)	1,997	2,112	2,601	3,850	3,970	4,550	5,241	14,900	13,965	15,006
Gross profit	10,023	12,789	15,940	21,773	23,438	27,194	31,366	35,654	39,613	40,813
Operating expenses:										
Research and development(1)	7,218	7,338	8,077	9,531	11,928	11,444	11,085	13,080	14,965	18,034
In-process research and development	—	—	—	—	6,206	—	16,104	40,053	—	—
Selling, general and administrative(1)	8,920	9,174	12,294	16,348	20,720	21,200	19,110	26,906	26,893	32,571
Accrued contingent liabilities	—	—	—	—	—	—	—	30,580	790	570
Total operating expenses	16,138	16,512	20,371	25,879	38,854	32,644	46,299	110,619	42,648	51,175
Loss from operations	(6,115)	(3,723)	(4,431)	(4,106)	(15,416)	(5,450)	(14,933)	(74,965)	(3,035)	(10,362)
Other income (expense):										
Interest income	30	74	96	108	122	339	294	269	263	242
Interest expense	(193)	(199)	(209)	(210)	(428)	(634)	(659)	(688)	(684)	(695)
Other income (expense), net	(7)	95	10	39	42	(162)	(31)	(98)	(146)	5
Total other income (expense)	(170)	(30)	(103)	(63)	(264)	(457)	(396)	(517)	(567)	(448)
Loss before provision for income taxes	$ (6,285)	$ (3,753)	$ (4,534)	$ (4,169)	$ (15,680)	$ (5,907)	$ (15,329)	$ (75,482)	$ (3,602)	$ (10,810)
Provision for income taxes	—	—	7	14	13	16	16	42	34	68
Net loss	$ (6,285)	$ (3,753)	$ (4,541)	$ (4,183)	$ (15,693)	$ (5,923)	$ (15,345)	$ (75,524)	$ (3,636)	$ (10,878)

(1) Includes stock-based compensation expense as follows:

	Three months ended									
(in thousands)	Mar. 31, 2017	June 30, 2017	Sept. 30, 2017	Dec. 31, 2017	Mar. 31, 2018	June 30, 2018	Sept. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	June 30, 2019
	(unaudited)									
Cost of revenue	$ 11	$ 11	$ 11	$ 11	$ 16	$ 20	$ 27	$ 22	$ 32	$ 58
Research and development	204	184	184	229	214	226	230	360	507	1,291
Selling, general and administrative	174	196	197	249	258	272	332	681	820	1,676
Total stock-based compensation expense	$ 389	$ 391	$ 392	$ 489	$ 488	$ 518	$ 589	$ 1,063	$ 1,359	$ 3,025

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The following table sets forth our consolidated results of operations data as a percentage of revenue for the periods presented:

									Three months ended	
(in thousands)	Mar. 31, 2017	June 30, 2017	Sept. 30, 2017	Dec. 31, 2017	Mar. 31, 2018	June 30, 2018	Sept. 30, 2018	Dec. 31, 2018	Mar. 31, 2019	June 30, 2019
					(unaudited)					
Revenue	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of revenue	16.6%	14.2%	14.0%	15.0%	14.5%	14.3%	14.3%	29.5%	26.1%	26.9%
Gross profit	83.4%	85.8%	86.0%	85.0%	85.5%	85.7%	85.7%	70.5%	73.9%	73.1%
Operating expenses:										
Research and development	60.0%	49.2%	43.6%	37.2%	43.5%	36.1%	30.3%	25.9%	27.9%	32.3%
In-process research and development	—	—	—	—	22.6%	—	44.0%	79.2%	—	—
Selling, general and administrative	74.3%	61.6%	66.3%	63.8%	75.6%	66.8%	52.2%	53.2%	50.2%	58.4%
Accrued contingent liabilities	—	—	—	—	—	—	—	60.5%	1.5%	1.0%
Total operating expenses	134.3%	110.8%	109.9%	101.0%	141.7%	102.9%	126.5%	218.8%	79.6%	91.7%
Loss from operations	(50.9)%	(25.0)%	(23.9)%	(16.0)%	(56.2)%	(17.2)%	(40.8)%	(148.3)%	(5.7)%	(18.6)%
Other income (expense):										
Interest income	0.3%	0.5%	0.5%	0.4%	0.4%	1.1%	0.8%	0.5%	0.5%	0.4%
Interest expense	(1.6)%	(1.3)%	(1.1)%	(0.8)%	(1.6)%	(2.0)%	(1.8)%	(1.4)%	(1.3)%	(1.2)%
Other income (expense), net	(0.1)%	0.6%	0.1%	0.2%	0.2%	(0.5)%	(0.1)%	(0.1)%	(0.3)%	—
Total other income (expense)	(1.4)%	(0.2)%	(0.5)%	(0.2)%	(1.0)%	(1.4)%	(1.1)%	(1.0)%	(1.1)%	(0.8)%
Loss before provision for income taxes	(52.3)%	(25.2)%	(24.4)%	(16.2)%	(57.2)%	(18.6)%	(41.9)%	(149.3)%	(6.8)%	(19.4)%
Provision for income taxes	—	—	0.1%	0.1%	—	0.1%	—	0.1%	0.1%	0.1%
Net loss	(52.3)%	(25.2)%	(24.5)%	(16.3)%	(57.2)%	(18.7)%	(41.9)%	(149.4)%	(6.9)%	(19.5)%

Quarterly trends

Revenue

Our quarterly revenue increased for all periods presented primarily due to an increase in consumables revenue resulting from growth of the instrument installed base and higher consumable pull-through per instrument. The revenue for the increase in instrument unit volumes was partially offset by a decrease in the average instrument selling price.

Cost of revenue

Our quarterly cost of revenue increased for all periods presented, except for the first quarter of 2019, primarily due to an increase in volume of sales. The first quarter of 2019 had lower excess and obsolete inventory and lower warranty reserves. Commencing in the fourth quarter of 2018 and continuing in the first and second quarters of 2019, cost of revenue as a percentage of revenue was higher than in prior periods as a result of additional royalties related to the judgment in the Bio-Rad litigation.

Operating expenses

Our quarterly research and development expenses increased for all periods presented, except for the second and third quarters of 2018, primarily due to increases in personnel expenses and laboratory materials and supplies which were attributable to an increase in headcount and expenses supporting our continued research and development efforts to enhance our existing products and develop new products.

Our in-process research and development expense consisted of expenses incurred in the first, third and fourth quarters of 2018 related to intellectual property we purchased in connection with our acquisitions of Spatial Transcriptomics and Epinomics and our acquisition of an exclusive license to certain intellectual property from Prognosys, respectively. There were no acquisitions of in-process research and development in other quarters in 2017 or 2018.

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Our selling, general and administrative expenses increased for all periods presented, except for the third quarter of 2018, primarily due to increases in outside legal fees and increases in personnel expenses driven by increases in headcount. The decrease in selling general and administrative expenses from the second quarter of 2018 to the third quarter of 2018 was primarily driven by lower outside legal fees during the third quarter due to the timing of litigation matters. Beginning in the fourth quarter of 2018, we also incurred higher consulting and professional expenses.

Our accrued contingent liabilities consisted of $30.6 million of expenses relating to the litigation with Bio-Rad, for which we established an accrual in the fourth quarter of 2018. There was no similar expense accrual in 2017 or in prior quarters in 2018. An additional $0.8 million and $0.6 million was recorded in the first and second quarter of 2019, respectively, related to pre- and post- judgment interest.

Liquidity and capital resources

As of June 30, 2019, we had approximately $56.0 million in cash and cash equivalents which were primarily held in U.S. bank deposit accounts and money market funds, $26.8 million in accounts receivable and an accumulated deficit of $245.6 million. Approximately $5.0 million of cash, which serves as collateral for an outstanding letter of credit, was classified as noncurrent restricted cash as of June 30, 2019. Since our inception, we have generated negative cash flows from operations.

We have asked the U.S. District Court for the District of Delaware to allow us to post a bond for approximately $35 million in connection with our litigation with Bio-Rad. We expect that prior to posting the bond, we will be required to deposit cash as collateral in a segregated cash account in an amount between $30 and $35 million. The collateral will be held until conclusion of the appeal.

We currently anticipate placing cash in escrow each quarter of an amount equal to 15% of net sales of our GEM microfluidic chips and associated consumables subsequent to the effective date of the injunction, which is anticipated to be August 28, 2019. The amounts will be held until conclusion of the appeal.

We currently anticipate making aggregate capital expenditures of between approximately $45.0 million and $55.0 million during the next 18 months, which includes the construction costs of our global expansion and for equipment to be used for manufacturing and research and development. Our future capital requirements will depend on many factors including our revenue growth rate, research and development efforts, the timing and extent of additional capital expenditures to invest in existing and new facilities, the expansion of sales and marketing and international activities, the timing of capital expenditures relating to our planned implementation of a new enterprise resource planning system and the introduction of new products. We have and may in the future enter into arrangements to acquire or invest in businesses, services and technologies, including intellectual property rights, and any such acquisitions or investments could significantly increase our capital needs.

We believe that our existing cash and cash equivalents, cash generated from sales of our products and either, or a combination of, the deferral of anticipated capital expenditures or partially borrowing under our existing credit agreements will be sufficient to meet our anticipated cash needs for the next 12 months. However, our liquidity assumptions may prove to be incorrect, and we could exhaust our available financial resources sooner than we currently expect. We intend to partially borrow under our existing revolving line of credit for our operations. Other than such borrowing, we do not anticipate that we will need to raise additional financing in the future to fund our operations. In the event that additional financing is required, we may not be able to raise it on terms acceptable to us or at all. If we raise additional funds through the issuance of additional debt or equity securities, it could result in dilution to our existing stockholders, increased fixed payment obligations, and the existence of securities with rights that may be senior to those of our common stock. If we incur

indebtedness, we could become subject to covenants that would restrict our operations and impair our competitiveness. Further, if we elect to borrow up to an additional $20.0 million of term loans under the Loan and Security Agreement, we will be obligated to issue warrants to purchase 133,000 shares of our Class A common stock at an exercise price of $1.62 per share to the lender thereof. If we are unable to raise additional capital when desired, our business, results of operations and financial condition would be adversely affected. We are subject to all the risks typically related to the development of new products and we may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business.

Sources of liquidity

Since our inception, we have generated negative cash flows from operations and have financed our operations and capital expenditures primarily through non-registered sales of convertible preferred stock and common stock and issuances of debt. Through June 30, 2019, we have raised a total of $243.2 million from the sale of convertible preferred stock, net of costs associated with such financings.

Silicon Valley Bank Loan and Security Agreement

We are party to a Second Amended and Restated Loan and Security Agreement, dated February 9, 2018, with Silicon Valley Bank (as amended, restated or supplemented from time to time, the "Loan and Security Agreement"), under which (i) $30.0 million of term loan borrowings were outstanding, (ii) no borrowings were outstanding under the $25.0 million revolving line of credit and (iii) up to $20.0 million of additional term loan borrowings, which, subject to certain conditions, are available to be drawn before December 31, 2019, in each case as of June 30, 2019. We are obligated to issue warrants to purchase 133,000 shares of our Class A common stock, at an exercise price of $1.62 per share to the lender if we elect to borrow the additional term loan referred to in the preceding sentence. We currently intend to partially draw under our revolving line of credit, prior to the consummation of this offering, in order to provide us with additional liquidity in connection with our operations.

Borrowings under the term loan mature on December 1, 2022 and accrue interest at a floating rate equal to the greater of *The Wall Street Journal* prime rate plus 2.0% or 6.25% per annum. Monthly payments of interest are due on the term loan through December 31, 2019, after which equal monthly installments of principal and interest are due. The revolving line of credit terminates on December 1, 2022 and the amount available under the revolving line of credit is based on 80% of eligible receivables and is subject to a borrowing base calculation. As of June 30, 2019, our revolving line of credit was $25.0 million. Borrowings under the revolving line of credit accrue interest at a floating rate equal to the greater of *The Wall Street Journal* prime rate plus 0.25% or 4.5% per annum. Borrowings under the revolving line of credit are repayable monthly. As of June 30, 2019, the borrowings under the term loan accrued interest at a rate of 7.50% per annum and the interest rate applicable to borrowings under the revolving line of credit would have been 5.75% per annum.

The Loan and Security Agreement contains affirmative and negative covenants, including a covenant requiring us to maintain minimum revenue equal to at least 70% of projected revenue for the applicable periods through and including December 31, 2020 and covenants that restrict, among other things, our ability to dispose of assets, change our business, management, ownership or business locations, enter into mergers or acquisitions, incur additional indebtedness or encumber any of our assets. Because the minimum revenue requirements referred to above are based on the revenue forecasts we provide to the lender, our inability to accurately forecast our revenue for future periods could result in a failure to comply with this covenant, which would be an event of default under the Loan and Security Agreement. We were in compliance with all covenants under the Loan and Security Agreement as of June 30, 2019 and remain in compliance with such covenants as of the date of the registration statement of which this prospectus forms a part.

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Cash flow summary

The following table sets forth our cash flows for the periods presented:

(in thousands)	Year ended December 31, 2017	2018	Six months ended June 30, 2018	2019
			(unaudited)	
Net cash provided by (used in):				
Operating activities	$ (10,699)	$ (76,409)	$ (20,226)	$ 13,401
Investing activities	(3,756)	(6,709)	(3,261)	(22,508)
Financing activities	20,583	105,367	69,078	59
Effect of exchange rates on cash, cash equivalents and restricted cash	(14)	(18)	11	2
Net increase in cash, cash equivalents and restricted cash	$ 6,114	$ 22,231	$ 45,602	$ (9,046)

Operating activities

The net cash provided by operating activities of $13.4 million in the six months ended June 30, 2019 was due primarily to a net loss of $14.5 million with adjustments for stock-based compensation expense of $4.4 million and depreciation and amortization of $2.2 million. The inflow from operating assets and liabilities was primarily due to an increase in accrued contingent liabilities of $17.3 million, an increase in noncurrent deferred rent of $11.7 million and an increase in accrued expenses and other current liabilities of $3.0 million partially offset by an increase in tenant allowances receivable of $6.5 million, an increase in inventory of $3.8 million and an increase in prepaid expenses and other assets of $1.2 million.

The net cash used in operating activities of $20.2 million in the six months ended June 30, 2018 was due primarily to a net loss of $21.6 million with adjustments for depreciation and amortization of $2.2 million and stock-based compensation expense of $1.0 million. The outflow from operating assets and liabilities was primarily due to an increase in accounts receivable of $4.0 million, an increase in inventory of $1.6 million, a decrease in accrued compensation and other related benefits of $1.3 million, an increase in prepaid expenses and other current assets and other assets of $0.4 million, and a decrease in accrued expenses and other current liabilities of $0.4 million, partially offset by an increase in accounts payable of $5.1 million and an increase in deferred revenue of $0.7 million.

The net cash used in operating activities of $76.4 million in the year ended December 31, 2018 was due primarily to a net loss of $112.5 million with adjustments for depreciation and amortization of $3.9 million and stock-based compensation expense of $2.7 million. The inflow from operating assets and liabilities was primarily due to the establishment of an accrual for contingent liabilities of $38.0 million, an increase in noncurrent deferred rent of $3.3 million, an increase in accounts payable of $2.6 million, an increase in accrued compensation and other related benefits of $2.6 million, an increase in accrued expenses and other current liabilities of $1.7 million and an increase in deferred revenue of $1.7 million, partially offset by an increase in accounts receivable of $14.7 million, an increase in inventory of $3.7 million, and increase in tenant allowances receivable of $1.5 million and an increase in prepaid expenses and other current assets of $1.0 million.

The net cash used in operating activities of $10.7 million in the year ended December 31, 2017 was due primarily to a net loss of $18.8 million with adjustments for depreciation and amortization of $4.3 million and stock-based compensation expense of $1.7 million. The inflow from operating assets and liabilities was primarily due to an increase in accrued compensation and other related benefits of $3.5 million, an increase in accounts payable of $3.0 million, an increase in accrued expenses and other current liabilities of $1.8 million, and an

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increase in deferred revenue of $1.3 million, partially offset by an increase in accounts receivable of $5.1 million, an increase in inventory of $2.0 million and an increase in prepaid expenses and other current assets of $0.7 million.

The increase in cash used for operating activities in the year ended December 31, 2018 as compared to the prior year is primarily due to $60.8 million in cash paid for the acquisition of intellectual property to be used in research and development efforts to enhance existing products and develop new products.

Investing activities

The net cash used in investing activities of $22.5 million in the six months ended June 30, 2019 was due to purchases of property and equipment of $22.5 million.

The net cash used in investing activities of $3.3 million in the six months ended June 30, 2018 was due to purchases of property and equipment of $3.3 million.

The net cash used in investing activities of $6.7 million in the year ended December 31, 2018 was due to purchases of property and equipment of $6.3 million and the purchase of intangible assets of $0.4 million.

The net cash used in investing activities of $3.8 million in the year ended December 31, 2017 was due to purchases of property and equipment of $3.8 million.

Financing activities

The net cash provided by financing activities of $0.1 million in the six months ended June 30, 2019 was primarily from proceeds of $2.0 million from the issuance of common stock from the exercise of stock options, primarily offset by payments of deferred financing costs of $1.9 million.

The net cash provided by financing activities of $69.1 million in the six months ended June 30, 2018 was primarily from proceeds from the issuance of convertible preferred stock, net of issuance costs, of $49.9 million, proceeds from additional borrowings of $19.5 million and proceeds of $0.5 million from the issuance of common stock from the exercise of stock options, partially offset by payments of debt obligations of $0.7 million.

The net cash provided by financing activities of $105.4 million in the year ended December 31, 2018 was primarily from proceeds from the issuance of convertible preferred stock, net of issuance costs, of $84.8 million, net proceeds from additional borrowings of $19.5 million, and proceeds of $1.8 million from the issuance of common stock from the exercise of stock options, partially offset by payments on debt obligations of $0.7 million.

The net cash provided by financing activities of $20.6 million in the year ended December 31, 2017 was primarily from proceeds from the issuance of convertible preferred stock, net of issuance costs, of $20.0 million and proceeds of $1.1 million from the issuance of common stock from the exercise of stock options, partially offset by payments of capital lease obligation of $0.4 million.

Concentrations of credit risk

As of December 31, 2017 and 2018 and June 30, 2019, no single customer, including distributors, represented 10% or more of our accounts receivable balance. There was no single customer, including distributors, that individually exceeded 10% of our revenue during each of the years ended December 31, 2017 or 2018 or for the six months ended June 30, 2019.

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Contractual obligations and commitments

The following table summarizes our commitments to settle contractual obligations as of December 31, 2018:

		Payments due by period			
(in thousands)	Total	Less than 1 year	1 – 3 years	3 – 5 years	More than 5 years
Debt obligations, including interest(1)	$ 37,028	$ 6,495	$19,809	$10,724	$ —
Lease commitments(2)	66,059	2,847	12,595	11,905	38,712
Other obligations(3)	8,083	1,754	1,929	1,100	3,300
Total	$111,170	$ 11,096	$34,333	$23,729	$ 42,012

(1) As of June 30, 2019, the outstanding principal balance of our term loan under our Loan and Security Agreement was $ 29.7 million. Monthly payments of interest are due under the term loan through December 31, 2019, with equal monthly installments of principal and interest due for thirty-six months thereafter. We have an option to borrow an additional $20.0 million of term loans before January 1, 2020. An end of term payment of $1.8 million, which is due to the lender upon maturity in 2022, prepayment or acceleration of the term loan, is reflected as additional interest expense over the term of the loan. Borrowings under the term loan may be prepaid, subject to a prepayment penalty. See Note 5 to our consolidated financial statements included elsewhere in this prospectus for more information regarding the terms of the Loan and Security Agreement. In June 2019, our loan and security agreement was amended to extend our option to borrow an additional $20.0 million as a term loan through December 31, 2019. Monthly payments of interest are due through December 31, 2019, with monthly installments of principal and interest due for 36 months thereafter. As a result, annual payments due on the term loan decreased by approximately $4.2 million in 2019 and increased by $1.7 million, $1.6 million and $1.5 million in 2020, 2021 and 2022, respectively. This amendment is not reflected in the table above.

(2) We have entered into various non-cancelable leases for certain offices with contractual lease periods expiring between 2019 and 2029. As of December 31, 2018, we had an unused letter of credit in the amount of $5.0 million outstanding associated with the lease of our new Pleasanton global headquarters and research and development center.

(3) Other obligations include purchase obligations, prepaid services and royalties. Purchase obligations relate to our contract manufacturer which manufacturers our instruments and makes advance purchases of components based on our sales forecasts and the placement of purchase orders by us. To the extent components are purchased by the contract manufacturer on our behalf and cannot be used by the contract manufacturer's other customers, we are obligated to purchase such components. In addition, certain supplier agreements require us to make minimum annual purchases under the agreements. To date, we have met the minimum purchase commitments. Prepaid services includes subscription software services for which we have entered into non-cancelable arrangements. Royalties include minimum commitments for license arrangements. In 2019, we entered into additional purchase commitment for professional services for $0.7 million which is not reflected in the table above.

Off-balance sheet arrangements

We did not have during the periods presented, and we do not currently have, any off-balance sheet financing arrangements or any relationships with unconsolidated entities or financial partnerships, including entities sometimes referred to as structured finance or special purpose entities, that were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes.

Qualitative and quantitative disclosures about market risk

We are exposed to market risks in the ordinary course of our business. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily the result of fluctuations in foreign currency exchange rates.

Interest rate risk

As of December 31, 2018, we had cash and cash equivalents of $65.1 million, which consisted primarily of bank deposits and money market funds. Our historical interest income has not fluctuated significantly. A hypothetical 10% change in interest rates would have not had a material impact on our financial statements included in this prospectus. We do not enter into investments for trading or speculative purposes and have not used any derivative financial instruments to manage our interest rate risk exposure.

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Foreign currency exchange risk

Our reporting currency is the U.S. dollar and the functional currency of each of our subsidiaries is either its local currency or the U.S. dollar depending on the circumstances. Historically, most of our revenue has been denominated in U.S. dollars, although we have sold our products and services in local currency outside of the United States, principally the euro. For the year ended December 31, 2018 and for the six months ended June 30, 2019, approximately 16% and 14%, respectively, of our sales were denominated in currencies other than U.S. dollars. Our expenses are generally denominated in the currencies in which our operations are located, which is primarily in the United States. As our operations in countries outside of the United States grow, our results of operations and cash flows will be subject to fluctuations due to changes in foreign currency exchange rates, which could harm our business in the future. For example, if the value of the U.S. dollar increases relative to foreign currencies, in the absence of a corresponding change in local currency prices, our revenue could be adversely affected as we convert revenue from local currencies to U.S. dollars. In addition, because we conduct business in currencies other than U.S. dollars, but report our results of operations in U.S. dollars, we also face remeasurement exposure to fluctuations in currency exchange rates, which could hinder our ability to predict our future results and earnings and could materially impact our results of operations. We do not currently maintain a program to hedge exposures to non-U.S. dollar currencies. We do not believe that an immediate 10% increase or decrease in the relative value of the U.S. dollar to other currencies would have a material effect on our operating results.

Critical accounting policies and estimates

Our consolidated financial statements and the related notes thereto included elsewhere in this prospectus are prepared in accordance with GAAP. The preparation of consolidated financial statements also requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, costs and expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results could differ significantly from our estimates. To the extent that there are differences between our estimates and actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected.

We believe that the accounting policies described below involve a significant degree of judgment and complexity. Accordingly, we believe these are the most critical to aid in fully understanding and evaluating our consolidated financial condition and results of operations. For further information, see Note 2 of the notes to our consolidated financial statements included elsewhere in this prospectus.

Revenue recognition

We generate revenue from sales of our products and services. Our products consist of instruments and consumables, including proprietary microfluidic chips, slides, reagents and other consumables for both our Visium and Chromium solutions. We also generate a small portion of our revenue from instrument service agreements which relate to extended warranties.

Effective January 1, 2019, we adopted Accounting Standards Codification (“ASC”) Topic 606, *Revenue from Contracts with Customers*, using the modified retrospective transition method. The cumulative effect of initially adopting ASC Topic 606 was immaterial.

The revenue recognition accounting policy described below relates to revenue transactions from January 1, 2019 and onward, which are accounted for in accordance with ASC Topic 606—Revenue from Contracts with Customers.

We recognize revenue when control of the products and services is transferred to our customers in an amount that reflects the consideration we expect to receive from our customers in exchange for those products and services. This process involves identifying the contract with a customer, determining the performance

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obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. We consider a performance obligation satisfied once we have transferred control of a good or service to the customer, meaning the customer has the ability to use and obtain the benefit of the good or service.

Revenue from product sales is recognized when control of the product is transferred, which is generally upon shipment to the customer. In instances where right of payment or transfer of title is contingent upon the customer's acceptance of the product, revenue is deferred until all acceptance criteria have been met. Instrument service agreements, which relate to extended warranties, are typically entered into for one-year terms, following the expiration of the standard one-year warranty period. Revenue for extended warranties is recognized ratably over the term of the extended warranty period as a stand ready performance obligation. Revenue is recorded net of discounts, distributor commissions and sales taxes collected on behalf of governmental authorities. Customers are invoiced generally upon shipment, or upon order for services, and payment is typically due within 45 days. Cash received from customers in advance of product shipment or providing services is recorded as a contract liability. Our contracts with our customer generally do not include rights of return or a significant financing component.

We regularly enter into contracts that include various combinations of products and services which are generally distinct and accounted for as separate performance obligations. The transaction price is allocated to each performance obligation in proportion to its standalone selling price. We determine standalone selling price using average selling prices with consideration of current market conditions. If the product or service has no history of sales or if the sales volume is not sufficient, we rely upon prices set by management, adjusted for applicable discounts.

The revenue recognition accounting policy described below relates to revenue transactions prior to January 1, 2019, which are accounted for in accordance with ASC Topic 605—Revenue Recognition.

We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price to the customer is fixed or determinable and collectability is reasonably assured. We assess collectability based on factors such as the customer's creditworthiness and past collection history, if applicable. If collection is not reasonably assured, revenue recognition is deferred until receipt of payment. We also assess whether a price is fixed or determinable by, among other things, reviewing contractual terms and conditions related to payment. Delivery occurs when there is a transfer of title and risk of loss passes to the customer.

Certain of our sales arrangements involve the delivery of multiple products and services within contractually binding arrangements. Multiple-deliverable sales transactions typically consist of the sale and delivery of one or more instruments and consumables together and may include an instrument service agreement.

For sales arrangements that include multiple deliverables, we use the stated contractual price for the instrument service agreements, if and when sold, and allocate the remaining contract consideration at the inception of the contract to the other units of accounting based upon their relative selling price. We may use our best estimate of selling price for individual deliverables when vendor specific objective evidence or third-party evidence is unavailable. A delivered item is considered to be a separate unit of accounting when it has value to the customer on a stand-alone basis.

Our products, other than instrument service agreements, are typically delivered together or within a short time frame, generally within one to three months of the contract date. Instrument service agreements are typically

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entered into for a one-year term, following the expiration of the standard one-year warranty period. Our products are generally sold without the right of return. Amounts received before revenue recognition criteria are met are classified in the balance sheets as deferred revenue.

Contract costs

Beginning January 1, 2019, sales commissions earned by our sales force are considered incremental and recoverable costs of obtaining a contract with a customer. Sale commissions related to the sale of extended warranties are deferred and amortized on a straight-line basis over the service term, which is typically greater than one year from the contract date. Amortization of deferred commissions is included in sales and marketing expenses.

Inventory

Inventory is recorded at the lower of cost, determined on a first-in, first-out basis, or net realizable value. We use judgment to analyze and determine if the composition of its inventory is obsolete, slow-moving or unsalable and frequently reviews such determinations. We write down specifically identified unusable, obsolete, slow-moving or known unsalable inventory in the period that it is first recognized by using a number of factors including product expiration dates, open and unfulfilled orders and sales forecasts. Any write-down of its inventory to net realizable value establishes a new cost basis and will be maintained even if certain circumstances suggest that the inventory is recoverable in subsequent periods. Costs associated with the write-down of inventory are recorded to cost of revenue on our consolidated statements of operations. We make assumptions about future demand, market conditions and the release of new products that may supersede old ones. However, if actual market conditions are less favorable than anticipated, additional inventory write-downs could be required.

Stock-based compensation

We estimate the fair value of share-based payment awards granted to employees and directors on the grant date using the Black-Scholes option-pricing model. The fair value of share-based payment awards is recognized as compensation expense on a straight-line basis over the requisite service period in which the awards are expected to vest, which is generally four years, and forfeitures are recognized as they occur. Share-based payment awards that include both a service condition and a performance condition are considered expected to vest when the performance condition is probable of being met.

The Black-Scholes model considers several variables and assumptions in estimating the fair value of stock-based awards. These variables include the per share fair value of the underlying common stock, exercise price, expected term, risk-free interest rate, expected annual dividend yield and expected stock price volatility over the expected term. For all stock options granted, we calculated the expected term using the simplified method for “plain vanilla” stock option awards. We have no publicly available stock information. Therefore, we have used the historical volatility of the stock price of similar publicly traded peer companies. The risk-free interest rate is based on the yield available on U.S. Treasury zero-coupon issues similar in duration to the expected term of the equity-settled award.

Equity instruments granted to nonemployees are valued using the Black-Scholes option pricing model and are subject to periodic revaluation over their vesting terms. Nonemployee stock-based compensation is recognized over the related performance period, which is generally the vesting term of the awards.

Common stock valuation

There has been no public market for our common stock to date. As such, the estimated fair value of our common stock and underlying stock options has been determined at each grant date by our board of directors,

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with input from management, based on the information known to us on the grant date and upon a review of any recent events and their potential impact on the estimated per share fair value of our common stock. As part of these fair value determinations, our board of directors obtained and considered valuation reports prepared by a third-party valuation firm in accordance with the guidance outlined in the American Institute of Certified Public Accountants Technical Practice Aid, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*.

Beginning December 31, 2018, in contemplation of an initial public offering, in determining the fair value of our common stock, we estimated the enterprise value of our business using the hybrid approach. The hybrid method is a probability-weighted expected return method ("PWERM"), which utilizes the probability of discrete exit scenarios and the probability of the remaining private scenario. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available, as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. We estimated the enterprise value of our business for the exit scenario using the market approach. Under the market approach, a group of guideline publicly-traded companies with financial and operating characteristics similar to our company are selected and valuation multiples based on the guideline public companies' financial information and market data are calculated. Based on the observed valuation multiples from our guideline public company universe, an appropriate multiple was selected to apply to our historical and forecasted revenue results. We estimated the enterprise value of the business under the remaining private scenario by reference to the closest round of equity financing preceding the date of the valuation using the option pricing method ("OPM"). The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event. A discount for lack of marketability ("DLOM") of the common stock is then applied to arrive at an indication of value for the common stock. A DLOM is meant to account for the lack of marketability of a stock that is not traded on public exchanges.

Based on our early stage of development and other relevant factors, we determined that a hybrid approach of the OPM and the PWERM methods was the most appropriate method for allocating our enterprise. Previously, we estimated the enterprise value of our business either by reference to the closest round of equity financing preceding the date of the valuation using the OPM (by "backsolving" the implied enterprise value based on the price paid for each new preferred security sold), by the market approach, or by the income approach.

In addition to considering the results of these third-party valuation reports, our board of directors used assumptions based on various objective and subjective factors, combined with management judgement, to determine the fair value of our common stock as of each grant date, including:

- the prices at which we sold shares of preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- external market conditions affecting the life sciences research and development industry and trends within the industry;
- our stage of development and business strategy;
- our financial condition and operating results, including our levels of available capital resources and forecasted results;

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- developments in our business;
- the progress of our research and development efforts;
- equity market conditions affecting comparable public companies;
- general United States market conditions and the lack of marketability of our common stock; and
- for purposes of determining our stock-based compensation expense for option grants in 2019, we re-evaluated the grant date fair value of our common stock solely for accounting purposes based on external market factors and progress in and input related to this offering through August 19, 2019.

Application of these approaches involves the use of estimates, judgement and assumptions that are highly complex and subjective, such as those regarding our expected future revenue, expenses and future cash flows, discount rates, market multiples, the selection of comparable companies and the probability of possible future events. Changes in any or all of these estimates and assumptions or the relationships between those assumptions impact our valuations as of each valuation date and may have a material impact on the valuation of our common stock. For valuations after the completion of this initial public offering, our board of directors will determine the fair value of each share of underlying common stock-based on the closing price of our Class A common stock as reported on the date of grant.

As of June 30, 2019, based on the assumed initial public offering price per share of $, which is the midpoint of the price range set forth on the cover page of this prospectus, the aggregate intrinsic value of our outstanding stock options, was $ million, with $ million related to vested stock options. As of June 30, 2019, we had $39.2 million of unrecognized stock-based compensation which is expected to be recognized over a weighted-average period of approximately 3.4 years. In addition, subsequent to June 30, 2019, we granted options to purchase 845,475 shares of our common stock that vest over four years.

Accrued contingent liabilities

We have been and are currently involved in various legal proceedings, the outcomes of which are not within our complete control or may not be known for prolonged periods of time. Management is required to assess the probability of loss and amount of such loss, if any, in preparing our consolidated financial statements. We evaluate the likelihood of a potential loss from legal proceedings to which we are a party. We record a liability for such claims when a loss is deemed probable and the amount can be reasonably estimated. Significant judgment may be required in the determination of both probability and whether an exposure is reasonably estimable. Our judgments are subjective based on the status of the legal proceedings, the merits of our defenses and consultation with in-house and outside legal counsel. As additional information becomes available, we reassess the potential liability related to pending claims and may revise our estimates. Due to the inherent uncertainties of the legal processes in the multiple jurisdictions in which we operate, our judgments may be materially different than the actual outcomes, which could have material adverse effects on our business, financial conditions and results of operations.

Acquisitions of intellectual property

We evaluate acquisitions of assets and other similar transactions to assess whether or not the transaction should be accounted for as a business combination or asset acquisition by first applying a screen to determine if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets. If the screen is met, the transaction is accounted for as an asset acquisition. If the screen is not met, further determination is required as to whether or not we have acquired inputs and processes that have the ability to create outputs, which would meet the requirements of a business.

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We account for an asset acquisition under Accounting Standards Codification, *Business Combinations Topic 805, Subtopic 50*, which requires the acquiring entity in an asset acquisition to recognize net assets based on the cost to the acquiring entity on a relative fair value basis, which includes transaction costs in addition to consideration given. Goodwill is not recognized in an asset acquisition and any excess consideration transferred over the fair value of the net assets acquired is allocated to the non-monetary identifiable assets based on relative fair values. In-process research and development expenses are expensed as incurred provided there is no alternative future use.

Contingent consideration payments in asset acquisitions are recognized when the contingency is resolved and the consideration is paid or becomes payable (unless the contingent consideration meets the definition of a derivative, in which case the amount becomes part of the basis in the asset acquired). Upon recognition of the contingent consideration payment, the amount is included in the cost of the acquired asset or group of assets.

JOBS Act accounting election

We are an emerging growth company, as defined in the JOBS Act. Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act until such time as those standards apply to private companies. We have elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date we (i) are no longer an emerging growth company or (ii) affirmatively and irrevocably opt out of the extended transition period provided in the JOBS Act. As a result, our financial statements may not be comparable to companies that comply with new or revised accounting pronouncements as of public company effective dates.

Recent accounting pronouncements and recently adopted accounting standards

See Note 2 to our consolidated financial statements included elsewhere in this prospectus for more information.

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Business

Mission

Our mission is to accelerate the mastery of biology to advance human health.

Overview

We are a life science technology company building products to interrogate, understand and master biology. Our integrated solutions include instruments, consumables and software for analyzing biological systems at a resolution and scale that matches the complexity of biology. We have built deep expertise across diverse disciplines including chemistry, biology, hardware and software. Innovations in all of these areas have enabled our rapidly expanding suite of products, which allow our customers to interrogate biological systems at previously inaccessible resolution and scale. Our products have enabled researchers to make fundamental discoveries across multiple areas of biology, including oncology, immunology and neuroscience, and have helped empower the single cell revolution hailed by *Science* magazine as the 2018 'Breakthrough of the Year'. Since launching our first product in mid-2015 through June 30, 2019, we have sold 1,284 instruments to researchers around the world, including 93 of the top 100 global research institutions as ranked by *Nature* in 2018 based on publications, and 13 of the top 15 global pharmaceutical companies by 2018 revenue. We believe that this represents the very beginning of our penetration into multiple large markets. We expect that 10x will power a "Century of Biology", in which many of humanity's most pressing health challenges will be solved by precision diagnostics, targeted therapies and cures to currently intractable diseases.

The "10x" in our name refers to our focus on opportunities with the greatest potential for exponential advances and impact. We believe that the scientific and medical community currently understands only a tiny fraction of the full complexity of biology. The key to advancing human health lies in accelerating this understanding. The human body consists of over 40 trillion cells, each with a genome of 3 billion DNA base pairs and a unique epigenetic program regulating the transcription of tens of thousands of different RNAs, which are then translated into tens of thousands of different proteins. Progress in the life sciences will require the ability to measure biological systems in a much more comprehensive fashion and to experiment on biological systems at fundamental resolutions and massive scales, which are inaccessible with existing technologies. We believe that our technologies overcome these limitations, unlocking fundamental biological insights essential for advancing human health.

Resolution and scale are the imperatives underlying our technologies and products. Our Chromium and recently announced Visium product lines provide this resolution and scale along distinct but complementary dimensions of biology. Our Chromium products enable high throughput analysis of individual biological components, such as up to millions of single cells. They use our precisely engineered reagent delivery system to divide a sample into individual components in up to a million or more partitions, enabling large numbers of parallel micro-reactions. In this manner, a large population of cells can be segregated into partitions and analyzed on a cell by cell basis. Our Visium products, the first of which we expect to launch in late 2019, will enable analysis of biological molecules within their spatial context, providing the locations of analytes that give insight into higher order biological structure and function. Our Visium platform will use high density DNA arrays with DNA sequences that encode the physical locations of biological analytes within a sample, such as a tissue section. Our products utilize our sensitive and robust molecular assays to convert biological analytes into detectable signals, enabling researchers to obtain vast amounts of information about diverse biological analytes together with their single cell and spatial context. Finally, we provide highly sophisticated and scalable software for analyzing the raw data researchers generate and presenting it in a form that is readily understood by biologists.

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Our product portfolio consists of multiple integrated solutions that include instruments, consumables and software. These solutions guide customers through the workflow from sample preparation to sequencing on third-party sequencers that are commonly available in research settings to subsequent analysis and visualization.

Each of our solutions is designed to interrogate a major class of biological information that is impactful to researchers:

- Our single cell solutions, all of which run on our Chromium instruments, include:
    - Single Cell Gene Expression solution for measuring gene activity on a cell-by-cell basis;
    - Single Cell Immune Profiling solution for measuring the activity of immune cells and their targets;
    - Single Cell ATAC solution for measuring epigenetics, including the physical organization of DNA; and
    - Single Cell CNV solution for measuring cellular heterogeneity through DNA changes such as copy number variation.
- Our upcoming Visium solution will measure the spatial gene expression patterns across a tissue sample.

Our Feature Barcoding technology, which is currently compatible with our Single Cell Gene Expression and Immune Profiling solutions, allows researchers to simultaneously measure multiple analytes, such as protein and RNA, within the same set of cells or tissues.

Collectively, our solutions enable researchers to interrogate, understand and master biology at the appropriate resolution and scale.

We believe our solutions, which enable a comprehensive view of biology, target numerous market opportunities across the more than $50 billion global life sciences research tools market. We view much of this total market opportunity as ultimately accessible to us due to our ability to answer a broad diversity of biological questions. Based on the capabilities of our current solutions, and focusing solely on cases where our current solutions offer alternative or complementary approaches to existing tools, we believe, based on our internal estimates, we could access approximately $13 billion of the global life sciences research tools market. We believe we can further drive growth across our current and adjacent markets by improving or enabling new uses and applications of existing tools and technologies, as our solutions allow researchers to answer questions that may be impractical or impossible to address using existing tools.

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As of June 30, 2019, we employed a commercial team of over 190 employees, many of whom hold Ph.D. degrees, who help drive adoption of our products and support our vision. We prioritize creating a superior user experience from pre-sales to onboarding through the generation of novel publishable discoveries, which drive awareness and adoption of our products. We have a scalable, multi-channel commercial infrastructure including a direct sales force in North America and certain regions of Europe and distribution partners in Asia, certain regions of Europe, South America, the Middle East and Africa that drives our customer growth. This is supplemented with an extensive and highly specialized customer service infrastructure with Ph.D.-level specialists. We currently have customers in approximately 40 countries.

Our revenue was $71.1 million and $146.3 million for 2017 and 2018, respectively, representing an annual growth rate of 106%, and $59.2 million and $109.4 million for the six months ended June 30, 2018 and 2019, respectively, representing an annual growth rate of 85%. We generated net losses of $18.8 million and $112.5 million for 2017 and 2018. Our 2018 net loss resulted substantially from charges of $62.4 million associated with intellectual property acquisitions for research and development in addition to the litigation contingency accrual of $38.0 million which was recorded in the fourth quarter of 2018. We generated net losses of $21.6 million and $14.5 million for the six months ended June 30, 2018 and 2019, respectively. The $14.5 million net loss included a $15.9 million accrual for estimated royalties related to ongoing litigation.

The complexity of biology

Biology is staggeringly complex. The cell is the basic, fundamental organizational unit of all biological organisms. A human being starts from a single cell, which divides into over 40 trillion cells–such as blood cells, skin cells, muscle cells, bone cells, stem cells and neurons–to create the tissues that enable all necessary functions in the human body. These cells utilize the basic building blocks of DNA, RNA and protein, configured in cell-specific ways.

DNA, the hereditary material of living organisms, is the foundation for a series of biological processes that form the basis for biology and how cells function. DNA is transcribed into messenger RNA (“mRNA”) in a process referred to as transcription or, alternatively, gene expression. Information from the mRNA molecules is then translated into protein in a process called translation. Each gene has the ability to create multiple different mRNAs, resulting in the production of over 100,000 different mRNAs from about 30,000 genes. The complete collection of all of the DNA, mRNA and proteins are called the genome, transcriptome or gene expression profile, and the proteome, respectively. The epigenome includes molecular configurations and chemical DNA modifications that affect how genes are regulated. The genome, epigenome, transcriptome and proteome can be distinct for each of the trillions of cells in the human body and collectively constitute a rich architecture of biology.

Industry direction

The 20th century discovery of DNA, RNA, protein and the basic molecular and cellular mechanisms of their function paved early foundations for humanity to understand our own biology. In the early 2000s, the study of biology shifted from focusing on individual genes and their products to a more global level of characterizing the full collection of DNA, RNA and proteins and how they interact, giving rise to the field of genomics. Genomics is a broad, highly interdisciplinary field that approaches the study of biology at a system-wide level. We believe that genomics-based approaches will encompass much of biology and medical applications in the coming decades.

The Human Genome Project, which was completed in 2003, determined a reference sequence of the three billion nucleotides of the human genome as a composite over several individuals. This reference sequence

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provided an initial “parts list” of genes, enabling researchers to begin understanding human biology at a global molecular level.

The subsequent two decades of genomic research in many ways have been defined by genome-wide association studies (“GWAS”) and large-scale sequencing of individuals and populations. The goal was to compile all of the genetic variants in human populations and to link those variants to different conditions, traits and diseases. These associations would serve to generate clues and hypotheses that can be tested by subsequent experimentation to understand the detailed biology of each gene and variant.

Both of these efforts have provided substantial value and have been foundational in enabling multiple new research and clinical applications. However, much of the initial promise of the Human Genome Project and subsequent GWAS projects remains unfulfilled. We believe this is ultimately due to the tremendous underlying complexity of biology. The human genome project provided a list of parts and subsequent GWAS projects looked for statistical links between these parts and various diseases and traits. Going forward we need to understand the biological function of each gene and all the molecular and cellular networks they encode. Genomics needs to expand from its focus on the genome and statistical associations to the study of biology more broadly.

This presents an enormous challenge because of the limited capabilities of existing tools for accessing biology at the molecular and cellular level. Some of these limitations are:

- Average, or “bulk”, measurements obscure underlying differences between different biological units, such as individual cells;
- Low throughput prevents requisite sampling of the underlying complexity—for example, when only a few hundred cells can be evaluated at a time;
- Limited number of biological analytes are interrogated, giving a myopic view of only a few biological processes;
- Limited ability for multi-omic interrogation;
- Inefficient use of sample to generate a signal of sufficient strength to analyze the biological molecules of interest; and
- Inadequate bioinformatics and software tools.

We believe technologies that address these limitations will serve large and unmet market needs by providing a better understanding of molecular and cellular function, the origin of disease and how to improve of treatment.

Measure the full complexity of biology. A major need is for an in-depth cataloguing of biological complexity. This will involve going from a basic biological parts list to a detailed map of exactly how all of these parts are used and interact in both healthy and disease states. Researchers and clinicians need to characterize every cell in the human body, to understand how cell-to-cell variations in genomes, epigenomes, transcriptomes and proteomes give rise to function or dysfunction. They also need to characterize every tissue at a full molecular and cellular level, including how cells are arranged together into spatial patterns that affect function, give rise to disease, or impact treatment. For example, in the context of cancer biology, many tumors consist of a heterogeneous population of healthy and cancerous cells, the latter of which may consist of genetically distinct subpopulations that are susceptible to different therapeutics. Furthermore, different spatial patterns of cancer antigens may require different treatment approaches. Without being able to see cells and molecules in their spatial context it is difficult to fully understand tumor resistance and how cells interact with one another within the tumor microenvironment and enable targeted therapies.

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Massively parallelize experimentation. Mastering biology will require moving beyond the cataloguing of biological complexity and into performing experiments to understand the impact of active changes to biological systems. We believe technologies that enable measurement of massively parallel perturbation and the impact of these perturbations will be important for accelerating biological and medical discovery. For example, an unmet goal of researchers has been to compile all of the genetic variations in human populations and link those variations to different conditions, traits and diseases. Linking these variations to disease requires the analysis of the impact of these variations within different systems, alone and in various combinations. Technologies that enable these variations to be created in arbitrary combinations within various biological contexts and the impact of these combinations measured in a massively parallel fashion will highly accelerate this work. In another example, a longstanding need of researchers has been to predict the interactions between immune cells and the target molecules they can recognize. The human body can make over a trillion different immune cells that are collectively capable of recognizing and mounting a response to nearly any conceivable antigen. We believe that understanding, and ultimately harnessing, this targeting will require technologies that can enable the massively parallel screening of interactions between a set of recognizing immune cells and a set of synthetic antigen target molecules.

We believe technologies that address these needs will redefine biological discovery and power a Century of Biology in which many of humanity's most pressing health challenges will be solved by precision diagnostics, targeted therapies and cures to currently intractable diseases.

Our solutions

We have built and commercialized multiple product lines that allow researchers to interrogate, understand and master biological systems at a resolution and scale commensurate with the complexity of biology. We believe that our products overcome the limitations of existing tools. Our vision, discipline and multidisciplinary approach have allowed us to continuously innovate to develop the platforms, molecular assays and software that underlie our solutions.

Our technological imperatives: resolution and scale

Resolution and Scale are the imperatives that underlie our products and technology. First, our solutions enable understanding biology at the right level of biological resolution, such as at the level of the single cell or at high spatial resolution of tissues and organs. Second, we believe that high resolution tools only become truly powerful when they are built into technologies with tremendous scale. Measuring individual cells, spatial portions of tissues, or molecular interactions in small numbers is insufficient. Our products enable measuring and manipulating up to millions of single cells or thousands of tissue sample positions. Thus, our products provide the appropriate levels of both resolution and scale in a manner that allows researchers to easily sift through the complexity to access the underlying biology.

Our platforms, molecular assays and software

Our Chromium platform, recently announced Visium platform, molecular assays and software constitute the building blocks of our integrated solutions. These shared building blocks allow us to rapidly build and improve our solutions for studying biology at the appropriate resolution and scale:

Our Chromium platform enables high-throughput analysis of individual biological components. It is a precisely engineered reagent delivery system that divides a sample into individual components in up to a million or more partitions, enabling large numbers of parallel micro-reactions. In this manner, for example, the individual single cells of a large population of cells can be segregated so that each cell resides in its own partition. Each partition then behaves as a micro-scale reaction vessel in which its contents are barcoded with a DNA sequence that

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specifically identifies those contents as being distinct from the contents of other partitions. Once biological material in each partition is barcoded, they can then be pooled and sequenced together. Finally, the barcode sequences can be used to easily tease apart information originating from different partitions. Our paradigm of partitioning and barcoding gives researchers the ability to measure many discrete biological materials and/or perform many different experiments in parallel, providing tremendous resolution and scale.

We have leveraged our Chromium platform to create a suite of solutions that measure biological analytes at the resolution of the single cell, the most fundamental organizational unit of biology. We believe that, in this sense, all of biology is single cell biology and that our single cell solutions can enhance and sharpen a wide array of scientific work in genetics, developmental biology, molecular biology and cell biology.

Our Visium platform is being designed to identify where biological components are located and how they are arranged with respect to each other, otherwise referred to as “spatial analysis”. Our spatial platform will use high density DNA arrays which will have DNA barcode sequences that will encode the physical location of biological analytes within a sample, such as a tissue section. This should allow the spatial location of the analytes to be “read out” using sequencing to constitute a visual map of the analytes across the sample. Similarly to partitioning, spatial barcoding should gain tremendous power with large numbers of probes on an array, providing high resolution visualize patterns across biological tissues.

Our molecular assays are used with our Chromium platform, and with our planned Visium platform, to provide sensitive and robust biochemistries that convert minute amounts of biological analytes into detectable signals. We have created a wide variety of proprietary assays compatible with our platforms for measuring the genome, epigenome, transcriptome and proteome. For example:

- Our GEM-RT assay is a highly sensitive technique for detecting mRNA molecules that are in low abundance in single cells. Less sensitive methods easily miss low abundance mRNA molecules, resulting in loss of information about the activities of many important genes that are detectable using our assay.
- Our ATAC-seq assay can be used to determine whether particular genes are active or dormant on a system-wide basis and is tremendously useful in studying gene regulation.
- Our Feature Barcoding assay allows simultaneous multi-omic interrogation of different classes of biological analytes in a sample. Feature Barcoding is highly versatile and can be customized to analyze many different classes of analytes for a wide variety of applications.

Our software is essential to our mission of accelerating the mastery of biology. Since it enables new levels of resolution and scale, our platforms and molecular assays produce entirely new types of data and at much larger scales than previously achievable. To that end, we have developed sophisticated and scalable software that completes our solutions which we provide to researchers free of charge. Our analysis software transforms large amounts of raw data into usable results, giving researchers user friendly tools to dynamically explore these results. As larger and larger amounts of biological data are generated with greater ease, we believe that software tools will become increasingly critical for progress in biology.

Since our founding, we have committed to making software engineering and computational biology world-class, core internal competencies. We believe this deep investment distinguishes us from our competition and is worthwhile because it:

- *Removes barriers to adoption.* With our software, our customers can immediately begin making sense of their experimental data. Without it, they would be forced to develop their own software or wait for the community to do so, slowing down adoption of our products by months or even years;

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- *Accelerates pull-through.* Easy-to-use, efficient software helps our customers analyze their data and complete their experiments and studies faster, enabling them to move on to their next experimental questions sooner;
- *Increases scale.* Reliable, scalable software helps to remove analysis as a bottleneck as our customers plan larger and more ambitious experimental designs;
- *Expands the user base.* While early adopters are more likely to have access to bioinformatics expertise, our software enables a broader range of customers to take advantage of our solutions;
- *Enables better understanding of our customers' needs.* By supplying analysis software for our customers, we gain much greater insight into their use cases, helping us to design future products that best meet their needs; and
- *Enhances and accelerates product development.* The software we ship to customers is the same software we use to develop and optimize our platforms and chemistry. This aligns us closely with the needs of our customers and reduces our time-to-market.

Our product development approach

The success of our products is founded on how we approach product development. Our employees are deeply scientifically oriented, having the relevant scientific expertise embedded not only within research and development, but also within the management team and throughout the company. We are ambitious and focus on fundamentals. We strive to solve big challenges to enable new fundamental biology and to build technological capabilities with potential for exponential impact. We work closely with our customers, many of whom are thought leaders in genomics and medicine, to identify future frontiers and unmet needs. Once we identify the correct opportunities, we have the discipline to focus on execution and have a track record of bringing successful products to market. Since 2015, we have launched solutions in six major application areas, including significant version upgrades, which are supported by the launches of two instruments and a continuous stream of software releases.

Multidisciplinary collaboration and technological innovation are central to our product development process. We have built teams with deep expertise across diverse disciplines including chemistry, molecular biology, microfluidics, hardware, computational biology and software engineering. This multidisciplinary expertise forms the basis of our innovation engine, which allows us to introduce new products at a rapid pace as well as continuously launch improved versions of our existing products.

Our solutions enable our customers to focus on biology by providing them with intuitive user interfaces and software. Our products guide customers through the workflow, from preparing samples, to reading sample information on a third-party sequencer, through analyzing and visualizing this information, to make obtaining biological answers as easy as possible. Our workflows operate with existing sequencers that are widely available in research settings.

Our market opportunity

According to industry sources, the worldwide life sciences research tools market totaled more than $50 billion in 2017. Our diverse products and solutions allow biologists to interrogate and understand biological systems at exceptional resolution and scale. Our focus on enabling a comprehensive view of biology, and not narrowly focused on a particular analyte such as DNA alone, has produced products which we believe have broad applications and target numerous market opportunities across different areas of life sciences research. Because we provide solutions to answer a broad diversity of biological questions, we view much of this total market as ultimately accessible to us.

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Markets in which our current solutions offer alternative or complementary approaches to existing tools represented a total market opportunity of approximately $13 billion of the more than $50 billion global life sciences research tools market in 2017. This $13 billion market includes flow cytometry, next generation sequencing, laboratory automation, microscopy and sample preparation, among other tools. In many cases, our current solutions offer alternative approaches to existing tools, where the advantages of our solutions can provide more precise answers to existing biological questions than existing tools and technologies. Our tools may also complement, enhance and enable new applications of these technologies. Within this market, and more broadly within the entire life science research tools market, we believe we will compete for research spending and capture increasing share of research budgets as our solutions deliver new capabilities, enable new applications and lead to new discoveries. We also expect to enter additional markets in the future that will further expand our market opportunity.

We believe a strong benchmark of the potential adoption of our solutions is the installed base of real-time polymerase chain reaction ("RT-PCR") units, which is approximately 50,000 units globally. We also believe, based on industry sources, that there are over 15,000 next generation sequencers installed globally. While owners of next-generation sequencing instruments are one of several potential constituencies for buying our solutions, many of our customers do not own a sequencer and, as our installed base has grown, many of our customers have purchased multiple Chromium instruments. We believe that our market opportunity for placements of our instruments is meaningfully larger than the installed base of next generation sequencers.

Growth of our market opportunity is also driven by a broad and increasing range of applications for our solutions. Our solutions can be used in many different applications, including basic biology, oncology and immuno-oncology, genetic disease, neurological disease, autoimmunity, infectious disease, the human microbiome and many others. As we enter the "Century of Biology", we believe that the mastery of biology will create advances and benefits for a broad and growing range of industries including broader segments of the healthcare industry and beyond.

Our competitive strengths

We believe our continued growth will be driven by the following competitive strengths:

Our position as a leader in a large and growing market. Since launching our first product in mid-2015 through June 30, 2019, we have sold 1,284 instruments and we serve thousands of researchers globally. We have fostered deep relationships with many key opinion leaders and as of June 30, 2019, our customers included 93 of the top 100 global research institutions by publications, and 13 of the top 15 global pharmaceutical companies by 2018 revenue. Our products are entrenched within our customers' workflow and a significant portion of them utilize more than one of our solutions. Our technologies have become a vital tool for biological research. To date, more than 500 peer-reviewed articles have been published based on data generated using our products, with more than 200 of these published in 2018 and more than 200 published so far in 2019. Our position as a leader in this market allows us to form deep partnerships with our customers who help us stay on the frontiers of biology, giving us insight on industry needs that inform our product strategy and providing us with a strong competitive advantage.

Our proprietary technologies. Through multiple years of development, acquisition and licensing, we have amassed a core set of technologies that form the foundation of our growing suite of products and solutions. These technologies, including instruments, assays and software, combine a diverse set of disciplines, including chemistry, molecular biology, microfluidics, hardware, computational biology and software engineering. Our technologies underlie features and performance that differentiate our products from the competition. Further, many of these technological elements can be utilized across multiple products, enabling us to leverage our existing infrastructure and investment when building future products, increasing the speed of product

development and product performance. As of June 30, 2019, worldwide we owned or exclusively licensed over 175 issued or allowed patents and 470 pending patent applications. We also license additional patents on a non-exclusive and/or territory restricted basis. Our intellectual property portfolio includes foundational patents in single cell analysis, epigenomics, spatial analysis and multi-omics.

Our rigorous product development processes and scalable infrastructure. We have implemented a rigorous and systematic product development process by which our vision can be efficiently translated into commercial products. We develop our products over a set of defined phases delineated by validating multifunctional reviews, which ensure our teams remain focused on quality, efficiency and profitability. This process allows many highly focused teams to execute on separate product development efforts in parallel while drawing effectively on the resources and capabilities of the company. We have also built extensive technological and operational infrastructure to support the efficient execution of these teams. This infrastructure includes multiple technological investments across a range of areas, including custom barcoded gel bead production, microfluidic chip manufacturing, scalable high-performance computation and automated software productization and testing tools. This infrastructure can be drawn on to develop new products and improved versions of our existing products with high quality at a rapid pace.

Our customer experience and broad commercial reach. We believe in providing our customers with a high-quality experience from start to finish: starting with a collection of validated methods for preparation of samples to be run on our systems and ending with extensive software to aid in analysis and visualization of the data generated. We have also built comprehensive product testing and quality control into our culture and processes to help guarantee the performance of our products in customer hands. As of June 30, 2019, we employed a commercial team of over 190 full time employees. This includes an extensive and highly specialized customer service infrastructure with technical specialists covering multiple areas of expertise, including both experimental biology and software. Many members of our sales and customer service teams have a Ph.D. degree in the relevant scientific field. Both our sales and customer service teams help ensure our customers have a positive experience with our products.

Our experienced multidisciplinary team. At 10x, our success begins with our people. We have built a multidisciplinary team with expertise across a diverse set of areas such as chemistry, molecular biology, microfluidics, hardware, computational biology and software engineering who are committed to identifying and addressing problems at the forefront of biology. We have supplemented our diverse technical experience by assembling an operational team with expertise in manufacturing, legal, sales, marketing, customer service and finance. We believe this confluence of talent from multiple disciplines at 10x allows us to stay ahead of our competitors by identifying highly impactful opportunities and building products and solutions that address these opportunities.

Our growth strategy

Our growth strategy includes the following key elements:

Develop critical enabling technologies. Just as our past success is attributable to our innovative technologies, we believe that our future growth will be driven in large part by our significant continued investment in research and development. We aim to build new platforms, consumables and software that further our goals of interrogating, understanding and mastering biological systems at the needed resolution and scale. We prioritize innovations that meet large unmet market needs, such as measuring novel biological analytes with key functional impact at the single cell or spatial level. We expect that these investments in research and development will allow us to increase our penetration of our accessible market.

Expand the installed base of our Chromium instruments. Since our commercial launch in mid-2015 through June 30, 2019, we have placed 1,284 instruments and serve thousands of researchers globally. Utilizing our

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multi-channel sales and distribution, we will continue to engage with researchers to increase our installed base of Chromium instruments. We will target new customers in addition to expanding the number of instruments within institutions that have already recognized the significant value of our technology. A portion of our current laboratory customers do not yet own a Chromium instrument, but rather gain access to one of our instruments through an adjacent lab or core facility within the institution. These customers are substantial and easily accessible and therefore represents an opportunity for future instrument sales. We also intend to expand our existing geographic reach, both directly and through distributors.

Strengthen use and adoption of our consumables. Our instruments are designed to be used exclusively with our consumables. This closed system generates recurring revenue from consumables tied to each instrument we sell. We plan to drive wider adoption of our products within the workflows of our existing customers. For example, although most of the biopharmaceutical companies using our products use them at multiple sites, we believe that as our applications are increasingly incorporated into the validation steps in the drug development process, the amount of our consumables used will grow. We have built a dedicated global strategic sales, marketing and business development team to support the adoption cycle by biopharmaceutical companies. The launch of our Chromium Connect instrument next year is also aimed at driving higher consumable revenue growth, as the fully automated workflow will reduce bottlenecks caused by manual processes. We also plan to demonstrate new applications using our current solutions, including applications making synergistic use of multiple solutions.

Identify the most relevant technologies, create or acquire such technologies and develop them into new products. Over the years, we have developed, acquired and licensed a core set of technologies and associated intellectual property across a broad range of emerging areas within biology and life sciences. The ability to identify these core technologies and capabilities has complemented our internal product development process and enhanced the foundation of our growing suite of products and solutions. We will continue to identify and acquire or license foundational technologies and intellectual property that accelerate the development of new products or complement our existing products and technologies. For instance, we acquired Epinomics and Spatial Transcriptomics in 2018, obtaining technology and intellectual property that formed the foundation of our ATAC-seq assay and spatial platform, respectively.

Promote our platforms as the standard for single and spatial cell analysis. We believe many key opinion leaders have recognized our Chromium platform as the standard for single cell analysis. One of our strategies is to broaden this recognition and promote the breadth of scientific achievements enabled by our products. To date, more than 500 peer-reviewed articles have been published using data generated by our portfolio of Chromium solutions. We also plan to highlight successful instances where our recently announced Visium platform is used to analyze biological samples within their spatial context. Further research and discoveries will unfold as our solutions are utilized as the global standard.

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Our products and technology

Our products are integrated solutions comprised of instruments, consumables and software. They are built with our expertise in chemistry, molecular biology, microfluidics, hardware, computational biology and software engineering. Our products begin with a researcher's sample (such as a collection of thousands to millions of cells) and perform high-throughput barcoding to construct libraries that are compatible with standard sequencers. Our proprietary software then provides turn-key analysis pipelines and intuitive visualization tools that allow researchers to easily interpret the biological data from the samples. A summary of our solutions is as follows:

	10x SOLUTION	INTERROGATES	KEY EXAMPLE APPLICATIONS
Single Cell	*Chromium Single Cell* **Gene Expression Solution** (with Feature Barcoding)	• RNA • Cell surface protein • CRISPR screening	• Developmental Biology, Oncology, Immunology, Neuroscience and BioPharma
Single Cell	*Chromium Single Cell* **Immune Profiling Solution** (with Feature Barcoding)	• Immune cell RNA • Immune cell paired receptor RNA • Immune cell surface protein and antigen specificity	• Immunology, Oncology and BioPharma
Single Cell	*Chromium Single Cell* **ATAC-seq Solution**	• Epigenetics (chromatin accessibility)	• Developmental Biology, Oncology and Immunology
Single Cell	*Chromium Single Cell* **CNV Solution**	• DNA copy number variations	• Oncology and Neuroscience
Single Cell	*Chromium* **Linked-Read Solution**	• Long read genome information	• Human Genetics, Oncology, Population Genetics and AgBio
Spatial	*Visium Spatial* **Gene Expression Solution** (expected launch in late 2019)	• RNA locations	• Pathology and Oncology

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Our Chromium Platform

Our Chromium platform, which includes our Chromium Controllers, microfluidic chips and related consumables, enables high-throughput analysis of individual biological components. It is a precisely engineered reagent delivery system that divides a sample into individual components in up to a million or more partitions, enabling large numbers of parallel micro-reactions. The Chromium platform can be used to partition not only single cells, but also other biological materials such as cell nuclei and DNA molecules. The large numbers of partitions generated using our Chromium products can be used for analyzing samples at high resolutions and at large scales. We pair a partitioned sample with our proprietary gel beads bearing barcodes that allow researchers to uniquely identify the contents of each partition and distinguish them from contents of other partitions. We refer to the partitions that are generated on our Chromium platform as “GEMs”, which stands for Gel beads in EMulsion. We collectively refer to our partitioning and barcoding technologies as our GemCode technology.

Our Chromium Controller and microfluidic chips. All of our Chromium consumables run on our Chromium Controller instrument. We have designed our instrument to be widely accessible to researchers with a list price of $75,000 and a form factor that easily fits on a standard laboratory bench. Our Chromium Controller operates exclusively with our microfluidic chips, which are highly engineered single-use devices that process sample and reagents. During our Chromium workflows, the researcher loads sample onto the microfluidic chip along with our proprietary gel beads and oils. The loaded chip is inserted into the Chromium Controller, which facilitates the generation of GEMs that contain sample and gel beads. We plan to launch the Chromium Connect next year, a high-throughput version of our Chromium instrument that incorporates liquid handling robotics to automate our workflow.

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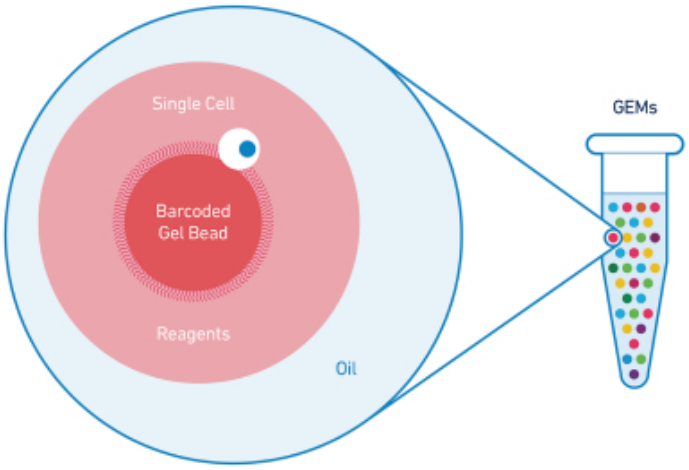

Our Gel Beads. Within each GEM, the sample is co-encapsulated with one of our proprietary gel beads which are designed to contain a unique, identifying DNA barcode for subsequent sequencing and analysis. Our gel beads, which we manufacture in-house using proprietary methods, incorporate barcoded DNA molecules that are designed to react with the sample inside each GEM. The GEMs act as individual reaction vessels to generate barcoded molecules. We have developed various molecular assays that can be used to perform barcoding reactions with different types of biological analytes—for example, our proprietary GEM-RT assay incorporates sequences of mRNA into barcoded molecules. Once those barcoded molecules are generated inside individual GEMs, the GEMs can be broken and their contents pooled to generate libraries that can be analyzed by widely available third-party sequencers. Critically, because different GEMs have different DNA barcodes, each sequencing read can be traced back to its GEM of origin, allowing identification of the biological source or context of the contents of the GEM. This barcoding paradigm enables multiplexing across very large numbers of cells or other biological material.

Key GemCode advantages. Our GemCode technology has a number of technological advantages over alternative tools. For example, our gel beads are composed of proprietary materials that permit their incorporation into GEMs at high efficiency. This efficiency increases the number of partitions that include one and only one barcoded gel bead and avoids loss of information from samples that are not paired with barcodes. Furthermore, the chemical structure of our gel beads allows them to not only encapsulate hundreds of millions of copies of DNA barcode oligonucleotides, but also permit their controlled release at precise times during our workflow. Similarly, our microfluidic chips are engineered to highly precise dimensions and consist of materials that optimize the partitioning of biological materials into GEMs. Such features enable our Chromium platform to provide a combination of superior performance characteristics for single cell analyses:

- *High cell throughput*: How many cells can be measured at once? Measuring more cells with resolution allows researchers to look for rare cells in a population. If a disease-causing cell occurs in only 1 in 10,000 cells in a sample, then measuring just 1,000 cells will be unlikely to find a single copy of the disease-causing cell. Our Single Cell Gene Expression and Immune Profiling solutions, on the other hand, have cell throughputs of up to 80,000 cells per run using one microfluidic chip which increases the likelihood of finding a copy of the disease-causing cell.
- *High cell capture rate*: What fraction of the researcher's sample cells are measured rather than lost? A high cell capture rate is important in many cases where researchers start with only a limited number of rare cells, such as a tumor biopsy from a patient. Our Single Cell Gene Expression and Immune Profiling solutions, for

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example, have typical cell capture rates of about 65%, which is significantly higher than those achieved by many competing solutions.

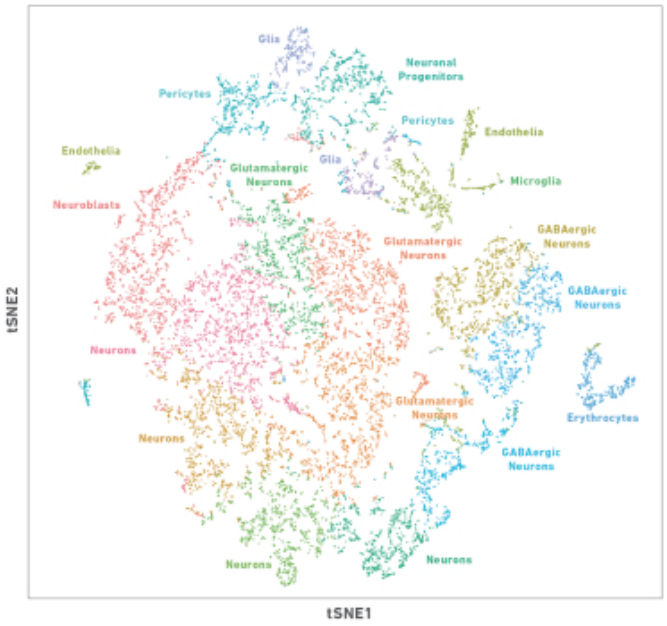
- *Low doublet rate*: How often do researchers avoid doublets—artifacts where two or more cells are read as one? Doublets result in loss of cell information, inaccurate information, and wasted sequencing. Researchers seek products with low doublet rates. Our Single Cell Gene Expression and Immune Profiling solutions, for example, have doublet rates of less than 1% per 1,000 cells.

Our Chromium platform currently provides researchers with solutions in five major application areas:

Single Cell Gene Expression

Our Chromium Single Cell Gene Expression solution provides customers with the ability to measure the transcriptome of single cells, revealing gene activity and networks on a cell-by-cell basis. This approach enables customers to identify and characterize rare cell types in a population of cells, characterize cell populations without prior knowledge of cell subtypes or cell markers, define novel cell types and cell states, discover new biomarkers for specific cell populations and analyze and understand cellular heterogeneity and its effects on biological systems.

For this solution, customers run their samples of interest on the Chromium Controller to generate GEMs containing single cells and prepare single cell libraries using our reagents. Researchers can sequence these single cell libraries on compatible third-party sequencers, analyze their data using our Cell Ranger analysis pipeline software and visualize their data using our Loupe Cell Browser software. The browser displays a visual representation of the data in which cells having similar gene expression profiles are colored and clustered together. Researchers can explore their data by cluster or gene(s) of interest to derive biological meaning from the visualizations. The following visualization is an example showing single cell profiling of approximately 10,000 mouse brain cells that reveals multiple types of neurons.



t-SNE projection of approximately 10,000 mouse brain cells derived from the combined cortex, hippocampus and ventricular zones of embryonic day 18 brain tissue. Major subpopulations were identified based on gene markers that are enriched in each class.

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Our Single Cell Gene Expression solution uses our proprietary biochemistry, GEM-RT to capture mRNA molecules with high sensitivity. Sensitivity is the number of different mRNA transcripts that can be detected. Higher sensitivities are required to detect mRNA molecules that are present in low abundance in a cell. Our latest version of this solution uses a new GEM-RT biochemistry that now has an increased sensitivity of up to 8,500 unique transcripts per cell.

Furthermore, our Single Cell Gene Expression solution can be used with our Feature Barcoding technology to simultaneously measure multiple analytes in the same cells. Our Feature Barcoding is highly customizable, allowing our customers to add a barcode to any biological feature they want to analyze in conjunction with gene expression and other biological data. Feature Barcoding can currently be used to:

- Measure cell surface proteins simultaneously with gene expression, giving a far fuller picture of the states of single cells that includes the transcriptional profile inside the cells as well as the proteins on the outside of the cells; and
- Measure a set of CRISPR genetic perturbations that have been applied to a cell simultaneously with the resulting changes to gene expression and/or surface protein characterization, allowing users to interrogate the impact of actively perturbing many different aspects of a biological system in a massively parallel fashion.

Our Single Cell Gene Expression solution, along with our other single cell solutions, are currently used by the Human Cell Atlas (“HCA”). The HCA is an international consortium of prominent genomics researchers that has emerged as the first and largest project aiming to develop reference maps for all cell types in all tissues of the human body. In 2017, we announced a collaboration with the HCA to enable pilot research projects. Under the terms of this collaboration, we provide members of the Human Cell Atlas consortium with discounts on our instruments and consumables. Sales to members of the Human Cell Atlas consortium accounted for less than 10% of our revenue for the year ended December 31, 2018. To our knowledge, none of our competitors have similar arrangements with the Human Cell Atlas. Our collaboration agreement with the Human Cell Atlas can be terminated at any time by either party. In much the same way that the standardized reference human genome generated by the Human Genome Project in 2003 paved the way for significant leaps in genomics, we believe that creation of a standardized reference of human cell types is critical for future advances. We believe that our partnership with the HCA is a recognition of the quality of our products and may accelerate their adoption by the wider research community.

To date, more than 350 peer-reviewed scientific publications have been published using data generated by our Single Cell Gene Expression solution with the top research areas being developmental biology, immunology and oncology. This body of work is already yielding insights into diseases. For example, in 2018 researchers used our solution to identify all of the cell types present in the mouse trachea. They found the seven previously known lung cell types, but also found evidence for an eighth rare cell type that was previously unknown. This rare cellular population, comprising less than 1% of all lung cells in both mouse and human, was found to express more than 50% of the lung Cftr protein. Loss of Cftr protein in humans is known to cause cystic fibrosis, a relatively common inherited disorder for which carrier screening is routinely performed. Although the gene underlying cystic fibrosis has been known for nearly 30 years, the cells that may be most critical to understanding the progression of disease were unknown until single cell expression analysis became available.

Single Cell Immune Profiling

Our Chromium Single Cell Immune Profiling solution is used to study the immune system, which is the body’s natural diagnostic and therapeutic system. The immune system has a vast network of T-cells and B-cells that recognize pathogens using receptor molecules that bind to foreign molecules, or antigens. T-cells and B-cells can generate an immense diversity of receptors that are each specific to a different potential antigen, making it possible for the human body to recognize nearly any conceivable antigen. Our Single Cell Immune Profiling

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solution enables researchers to study these receptor molecules at the single cell level in conjunction with the transcriptome of the immune cell. Through this, researchers can measure both the T-cell or B-cell receptors while also determining whether the cell has been activated to attack its target or is quiescent and waiting for a threat to emerge. Importantly, because our analysis is performed at the single cell level, we obtain information regarding the pairing of the sequences of the alpha and beta chains of T-cell receptors or the heavy and light chains of B-cell receptors. This paired receptor information is unavailable from traditional bulk approaches for analyzing immune cells and is critical as it is the pair of receptors that defines the targets of each immune cell. By enabling paired immune receptor and transcriptome analysis in massive numbers of immune cells, our Single Cell Immune Profiling solution sheds insight on the clonality, diversity and cellular context of the immune repertoire.

The workflow of this solution, which is similar to that of the Single Cell Gene Expression solution, utilizes our Chromium Controller to generate GEMs, followed by single cell library preparation and sequencing. In contrast to Gene Expression, our Single Cell Immune Profiling solution uses a different biochemistry that obtains sequence information from the 5' end of mRNA molecules, rather than their 3' end. This biochemistry allows researchers to capture the more information-rich regions of immune receptor transcripts. Our Single Cell Immune Profiling solution also includes a step of enriching for immune receptor transcripts using specific primers to create an immune-specific library that can be sequenced separately from gene expression. We have also developed specialized pipelines within our Cell Ranger software and a specialized visualization software, Loupe V(D)J Browser, for visualizing the paired immune receptor information derived from this product. This software allows researchers to identify cell type clusters based on gene expression and then layer T-cell and/or B-cell receptor sequence diversity directly onto that visualization, enabling users to easily derive biological meaning from these two different data types. The following visualization is an example showing the simultaneous assessment of paired immune cell receptor information and gene expression in colorectal cancer cells.

	V	D	J	C
H	IGHV1-3	IGH10R15-1A	IGHJ5	IGHA1
λ	IGLV2-14	-	IGLJ1	IGLC1

Ig Heavy Chain (H)

TAGCAGGGTTTCTTTCTTATATGGGGACCCAACAACCACATCCCTCCTCAGAAGCCCCCAGAGCACAACG
CCTCACCATGGACTGGACCTGGAGGATCCTCTTTTTGGTGGCAGCAGCCACAGGTGCCCACTCTCAGGTC
CAACTTTTGCAGTCTGGGGCTGAGGTGAAGAAGCCTGGGGCCTCAGTGAGAGTTTCCTGCAAGGCTTCT
GGATACACCTTCACTTCCTATGCTCTGCATTGGGTGCGCCAGGCCCCCGGACAAAGGCTTGAGTGGATG
GGATGGATCAACACTGGCAATGGTAACAAAAAATATTCACAGAAGTTCCAGGGCAGAGTCACCTTGAC
CAGGGACACATCCGCGAGCACAGCCTACATGGAATTGCGCAGCCTGACATCTGAAGACACGTCTGTATAT
TACTGTGCAAGAGACCGAGTTGATAGAGATCGGTTTAATGGAGCAATGCGATCCAACTACTGCTTTGA
CACCTGGGGCCAGGGAACCCAGGTCACCGTCTCCTCAGCATCCCCGACCAGCCCCAAGGTCTTCCCGCT
GAGCCTCTGCAGCACCCAGCCAGATGGGAACGTGGTCATCGCCTGCCTGGTCCAGGGCTTCTTCCCCCAG
GAGCCACTCAGTGTGACCTGGAGCGAAAGCGGACAGGGCGTGACCGCCAGAAACTTCCCACCCCAGC
CAGGATGCCTCCGGGGGACCTGTACACCACGAGCAGCCAGCTGACCCTGCCGGCCACACAGTGCCTAG
CCGGCAAGTCCGTGACATGCCACGTGAAGCACTACACGAATCCCAGCCAGGATGTGACTGTGCCCTG

Ig Light Chain (λ)

CTCCCAGCGACGTCTCATTTCTTATATGGGGGCTGGGGTCTCAGGAGGCAGCGCTCTCAGGA
CATCTCCACCATGGCCTGGGCTCTGCTGCTCCTCACCCTCCTCACTCAGGGCACAGGGTCCTGGG
CCCAGTCTGCCCTGACTCAGCCTGCCTCCGTGTCTGGGTCTCCTGGACAGTCGATCACCATCTCCT
GCACTGGAACCAGCAGTGATGTTGGTGGTTATGACTATGTCTCCTGGTACCAACAACACCCCGG
CAAAGCCCCCAAACTGATGATTTTTGAGGTCAATAATCGGCCCTCAGGAATTTCTGATCGCTTCT
CAGGCTCCAAGTCTGGCAACACGGCCTCCCTGACCATCTCTGGGCTCCAGGCTGAGGACGAGGCT
CAGTATTATTGTAGCTCATATACATCTAGGAGCACTCTTTATGTCTTCGGACCTGGGACCAGTGTCTC
CGTCCTGGGTCAGCCCAAGGCCAACCCCACTGTCACTCTGTTCCCGCCCTCCTCTGAGGAGCTC
CAAGCCAACAAGGCCACACTAGTGTGTCTGATCAGTGACTTCTACCCGGGAGCTGTGACAGTG
GCCTGGAAGGCAGATGGCAGCCCCGTCAAGGCGGGAGTGGAGACCACCAAACCCTCCAAACA
GAGCAACAACAAGTACGCGGCCAGCAGCTACCTGAGCCTGACGCCCGAGCAGTGGAAGTCCCACA

Overlay of gene expression and Ig clonotypes for colorectal cancer cells visualized using Loupe Cell Browser. Light blue dots indicate an Ig clonotype call. Dark blue dots show the location of the most prevalent Ig clonotype in the plasma cell cluster, with the table outlining the gene calls for the heavy (H) and lambda λ light chain. The paired H and λ chain V(D)J sequences are shown to the right and corresponding V(D)J nucleotides are color-coded (5'UTR: gray, V: red, D: yellow, J: green, C: purple).

Feature Barcoding can be used in combination with our Single Cell Immune Profiling solution, adding significant multi-omic functionality. Importantly, this functionality allows users to determine the antigen that is bound by

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immune cells simultaneously with their gene expression. This capability allows researchers to determine both the receptor sequences of individual immune cells as well as an antigen that the receptor targets and makes this analysis practical to perform for millions of immune cells. We believe that the capability to understand immune receptor-antigen interactions at a high-throughput single cell level is tremendously valuable for elucidating the rules of immune cell targeting and can be used to understand disease and identify leads for immunotherapies.

We believe our technology can assist researchers in constructing an immune map of receptor-antigen targeting rules. Such a map would allow for the prediction of the antigens recognized by a given receptor, or conversely, the prediction of receptors that bind to a given antigen. Due to the large number of potential receptor sequences and the large number of possible antigens, researchers previously assumed that computational prediction of the cognate antigen from receptor sequence alone would be impractical. However, recent work demonstrated that T-cell receptor sequences that recognize the same antigen shared enough sequence features that a computational prediction framework for mapping T-cell receptors to antigens is feasible. We believe that our Single Cell Immune Profiling Solution combined with Feature Barcoding will enable extending this work at far higher scales.

As a proof of concept for the immune map, we presented at the Advances of Genomes, Biology and Technology (“AGBT”) meeting in February 2019 results from a single experiment utilizing our Single Cell Immune Profiling Solution on approximately 200,000 T-cells from four individuals and 44 feature-barcoded antigens to identify T-cell receptor-antigen pairs. This experiment, which took place over approximately one week, generated a paired receptor-antigen dataset six times larger than the collection of all previously published receptor-antigen pairings. This leap was made possible by the tremendous resolution and scale with which the immune system can be analyzed using our solutions.

Single Cell ATAC

Our Chromium Single Cell ATAC solution enables customers to understand the epigenetic state—including how the genome and its surroundings are modified to “open” and “closed” states, affecting how genes are regulated—in up to millions of cells. While our Single Cell Gene Expression solution answers the “what” of what makes two cells different from each other, our Single Cell ATAC solution answers the “how”. These two products are highly complementary and can be used as a powerful combination to understand both the cause and effect of gene regulation.

ATAC-seq stands for “Assay for Transposase Accessible Chromatin using sequencing”. This technique uses an engineered transposase enzyme to insert nucleic acids tags into the genome while also excising the tagged sequences from its surroundings. ATAC-seq is based on the fact that the transposase enzyme will preferentially tag and excise regions of the genome that have an “open” chromatin state that is unimpeded by proteins bound to genomic DNA. The tagged sequences can be sequenced to infer genomic regions of increased chromatin accessibility as well as map regions that are bound by transcription factor proteins responsible for regulating gene expression. ATAC–seq was pioneered by researchers at Stanford University and is exclusively licensed to us. ATAC-seq has now become an important tool in epigenetics and genome-regulation research.

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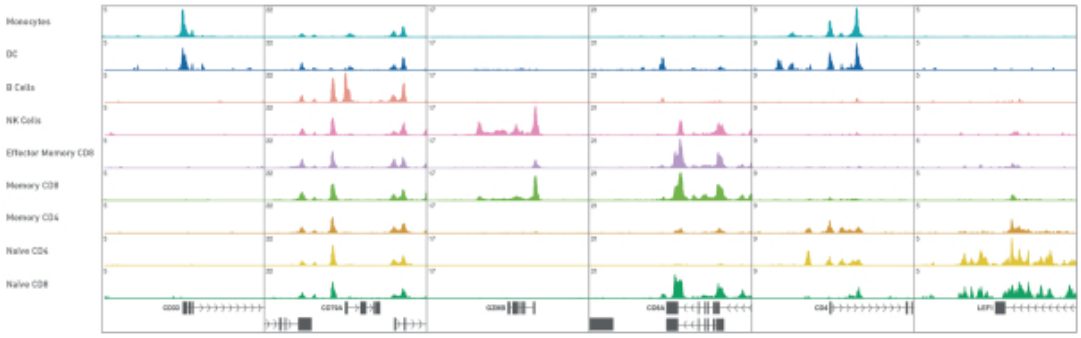
Our Single Cell ATAC solution uses the ATAC-seq assay in conjunction with our Chromium platform to create a product for high-throughput epigenetic interrogation at single cell resolution. In the workflow, users treat cell nuclei with transposase enzyme and then use our Chromium Controller to encapsulate these nuclei in GEMs. The tagged sequences from the nuclei are barcoded inside GEMs and then processed to generate sequencing libraries. Sequencing reads are analyzed using our Cell Ranger ATAC software, and visualized using our Loupe Cell Browser, which has been especially configured to display epigenetic data. The following visualization is an example of plots showing open chromatin around genes that are specifically associated with certain cell types.



Open chromatin signals around marker genes are specifically associated with the cell type of expression. Plots show aggregate chromatin accessibility profiles for each cluster at several marker gene loci.

Though we only launched this product in October 2018, our Single Cell ATAC solution has already been adopted by a number of key opinion leaders. In one example, researchers used a combination of single cell transcriptome profiling and single cell ATAC-seq to identify enhancer elements that mark specific sub-classes of cells in the mouse brain. Once these elements are identified they can be targeted in order to generate mice with specific cell types labeled or perturbed at a level of specificity not usually achievable using gene expression alone. The ability to specifically target new cell types of interest allows in-depth investigations of the functions of those targeted cells.

Single Cell Copy Number Variation (CNV)

Our Chromium Single Cell CNV solution enables the measurement of DNA changes—specifically changes in the number of copies of DNA segments—on a genome-wide basis at single cell resolution. This product is particularly useful for cancer research. Tumor cells frequently mutate and change such that a single “tumor” is actually comprised of many different types of tumor cells having different DNA mutations. This tumor heterogeneity allows different tumor cell types to evolve separately and respond differently to treatments. Our Single Cell CNV solution product enables researchers to systematically measure genomic differences between cells, providing information that is crucial in understanding how cancers evolve and can provide valuable insights into cancer treatment.

Our Single Cell CNV solution leverages a two-step process in which we first encapsulate cellular contents into cell beads, which are composed of a synthetic material that renders the genomic contents of individual cells accessible to our assays’ biochemistries. Once cell beads are formed, they are encapsulated into GEMs along with barcoded gel beads and undergo a reaction to generate barcoded sequencing libraries. Our Single Cell CNV solution has a cell throughput of up to 20,000 cells per run, cell capture rates of approximately 15% and doublet rates of less than 1% per 1,000 cells. Sequencing data is analyzed using our Cell Ranger DNA pipelines software, and visualized using our Loupe scDNA Browser, which offers intuitive visualization of DNA copy

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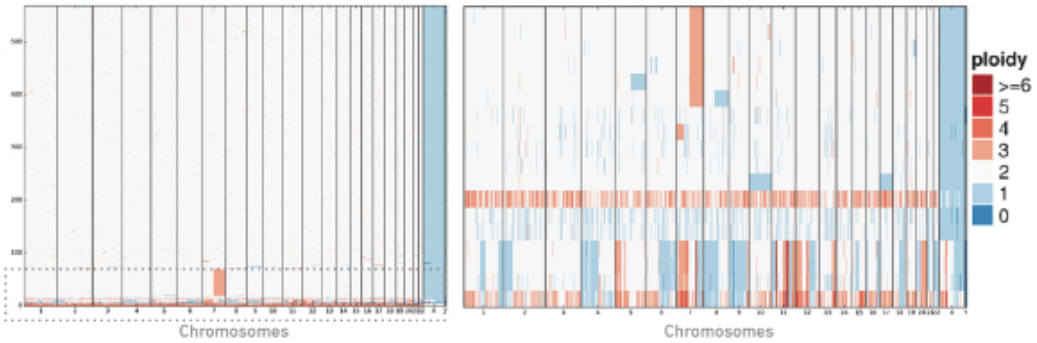
number changes along each human chromosome in the genome. The following visualization is an example of the detection of rare clones of a cell population having a particular DNA copy number variation.



Left: Heatmap showing the CNV profiles of 569 cells after 1% spike-in of MKN-45 cells (cancer cell line) into a BJ diploid cell line sample. The CNV profiles primarily correspond to the diploid cell line, while the bottom region of the heatmap corresponds to the MKN-45 cells.

Right: Enlargement of the bottom region of the heatmap highlighting the heterogeneous, non-diploid CNV profiles of the MKN-45 cells and an amplification in chromosome 7 of the diploid cell line, demonstrating that cell lines may not always be homogeneous.

This product, which became widely available in the third quarter of 2018, is yielding insights into disease states. For example, in a study undertaken by a major research university utilizing our products, gastric cancer samples were subjected to both single cell gene expression profiling and single cell CNV profiling. This combined approach allowed the direct comparison of sub-clonal structure revealed by DNA and RNA profiling. This study revealed that the use of both assays provided a more complete picture of the structure of the different cancerous and non-cancerous cells in their sample. This solution provides more resolution to researchers, enabling them to better understand the variations between the DNA in cloned cells.

For information relating to limitations on our ability to sell our Single Cell CNV solution, see the section titled *"Risk factors—Risks related to litigation and our intellectual property—We are involved in significant litigation which has consumed significant resources and management time and adverse resolution of these lawsuits could require us to pay significant damages, and prevent us from selling our products, which would severely adversely impact our business, financial condition or results of operations"*.

Our Visium platform

We are designing our Visium platform to enable researchers to understand the spatial positions of biological analytes within tissues at high resolution. Such spatial analysis can be critically important in understanding tissue function in both healthy and disease states. For example, in the context of neurobiology, neuronal degeneration in the *substantia nigra*, an area of the brain associated with movement, results in Parkinson's disease, while degeneration of upper and lower motor neurons results in amyotrophic lateral sclerosis, or Lou Gehrig's disease. In the context of cancer treatment, the knowledge of whether T-cells have infiltrated inside of a tumor, rather than merely surrounding the tumor, is an important prognostic indicator. Understanding the spatial relationship of the biological analytes in tissues may hold the key to unlocking the underlying causes and identifying cures for such diseases.

Our Visium products will be based on technology that we acquired from Spatial Transcriptomics in 2018. Spatial Transcriptomics utilized arrays having specialized probes on their surfaces that are encoded with the spatial position of the probe. In the Visium product workflow, a tissue sample will be placed onto the array. Reagents will be added by the user to create barcoded molecules from these probes and the biological material in the tissues. This barcoded material will encode the spatial information that was contained in the probes. Users will

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then pool the material from the array and follow a protocol to create libraries of molecules that can be sequenced using a standard sequencer. After sequencing, analysis software will assign each sequencing read to its spatial position of origin. Collectively, the spatially defined reads will provide a visual depiction of the locations and patterns of large numbers of biological analytes simultaneously in the tissue sample.

The Spatial Transcriptomics product performed spatial analysis of mRNAs using arrays that had 1,000 probes with distances of approximately 200 microns between probes. This product was used to identify heterogeneity in metastatic melanoma and to demonstrate that there was significantly more heterogeneity than could be predicted by manual pathology annotation. In an independent study of mouse and human amyotrophic lateral sclerosis samples researchers were able to observe changes in RNA expression over the disease course, while preserving the understanding of those changes in the spatial context. This allowed them to visualize the key changes that occur in brain regions before and during neuronal degeneration.

We are developing our Visium solution for spatial gene expression analysis, which we expect to launch in late 2019. Our Visium gene expression product is expected to have significant improvements over the Spatial Transcriptomics product, including increased spatial resolution, increase gene sensitivity, a simpler workflow and fully developed analysis and visualization software. Past this launch, we intend to continuously innovate to provide enhanced resolution, performance, throughput and efficiency. We also intend to develop additional Visium spatial products using our other assays which, analogously to the Chromium platform, allows spatial interrogation of a broader range of biological analytes including DNA, immune molecules, epigenetics and protein.

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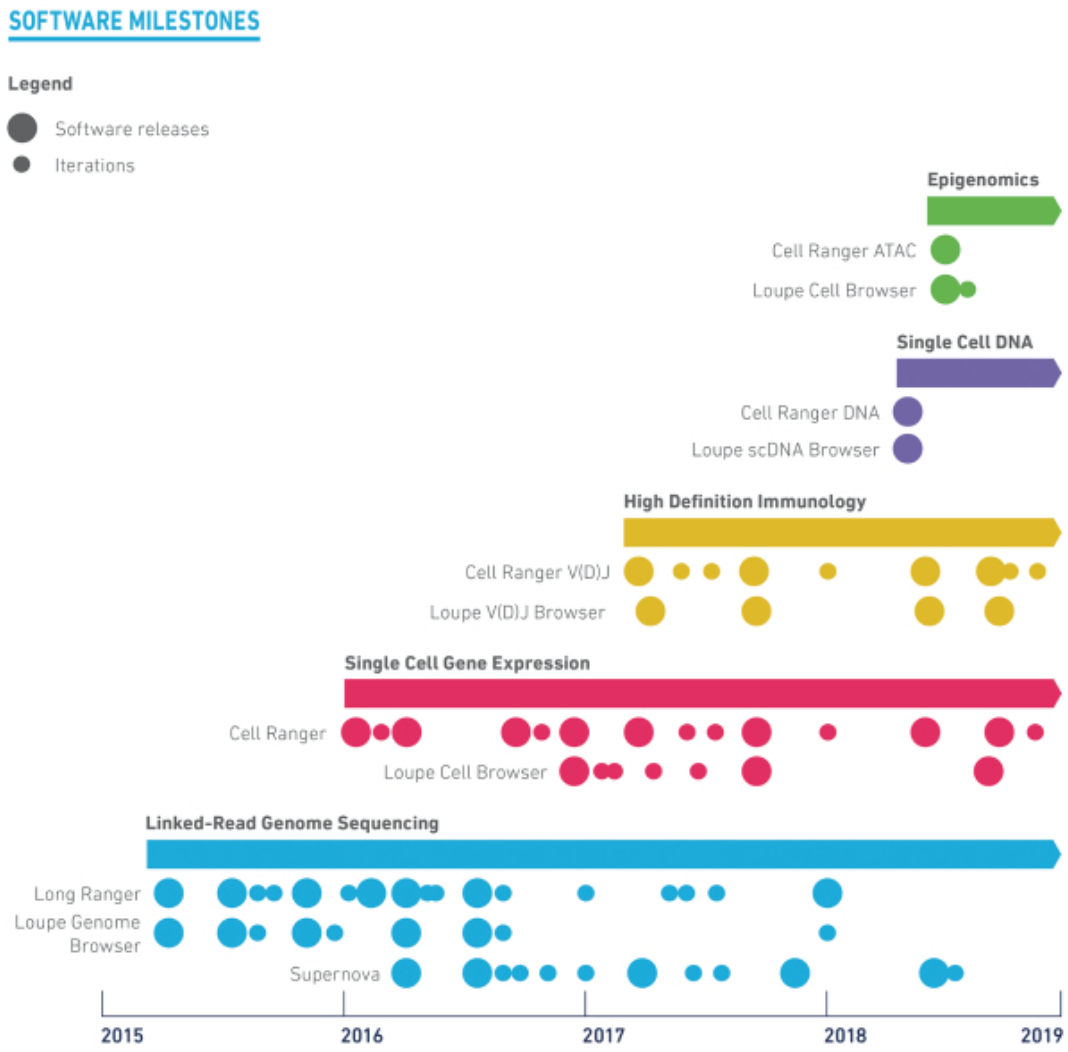
Our analysis and visualization software

Our software is a fundamental part of our integrated solutions and is comprised of two parts, analysis and visualization. Our analysis pipeline software tools, including Cell Ranger, Long Ranger and Supernova, take raw sequencing data as input and transform them into biologically meaningful results. Customers can further analyze these results in their own or third-party tools, or take them into our Loupe family of visualization software tools, which allow users to draw insights using an intuitive user interface without writing code. Our analysis and visualization software is generally available to researchers free of charge, so as to accelerate the adoption of our products and software as a standard for genome and single cell analysis.



Since our launch, we have shipped almost 50 major releases of our software. We believe that the main factors that differentiate our software include:

- **Ease of installation and use.** Much of the software typically used in bioinformatics analysis requires substantial programming expertise to use and even just to install. We invest substantial effort in making our

software both easy to install and use, so researchers can focus on their experiments rather than installation requirements.

- **Advanced algorithms and methods.** Our software makes the latest analytical methods easily accessible to researchers and we are constantly working to improve our software's ability to realize the maximum value and benefit of the data produced by our chemistries and platforms.
- **Scalable from workstation to cluster to cloud.** A robust, common architecture underlying our software tools gives researchers maximum flexibility to run our software on-premises on individual workstations or servers, on large high-performance compute clusters and in private and public clouds.

Peer-reviewed scientific publications using our products

To date, more than 500 peer-reviewed articles have been published based on data generated using our products. More than 90 of these articles were published in three of the most highly-regarded journals: *Cell*, *Nature* and *Science*. Underscoring the reach of our products, these publications cover a wide range of research and applied areas from cell biology to genetic health to neuroscience with the top three areas of publication being developmental biology, immunology and cancer research.

Research area	Number of articles	Percentage
Developmental Biology	112	17%
Immunology	88	14%
Cancer Research	72	11%
Computational Method	62	10%
Neuroscience	51	8%
Genome Assembly	41	6%
Cell Biology	37	6%
Other	33	5%
Assay Method	31	5%
Cell Atlas	31	5%
Genetic Health	29	5%
Microbiology	13	2%
Population Genetics	13	2%
Agrigenomics	11	2%
Conservation Biology	10	2%
Reproductive Biology	7	1%

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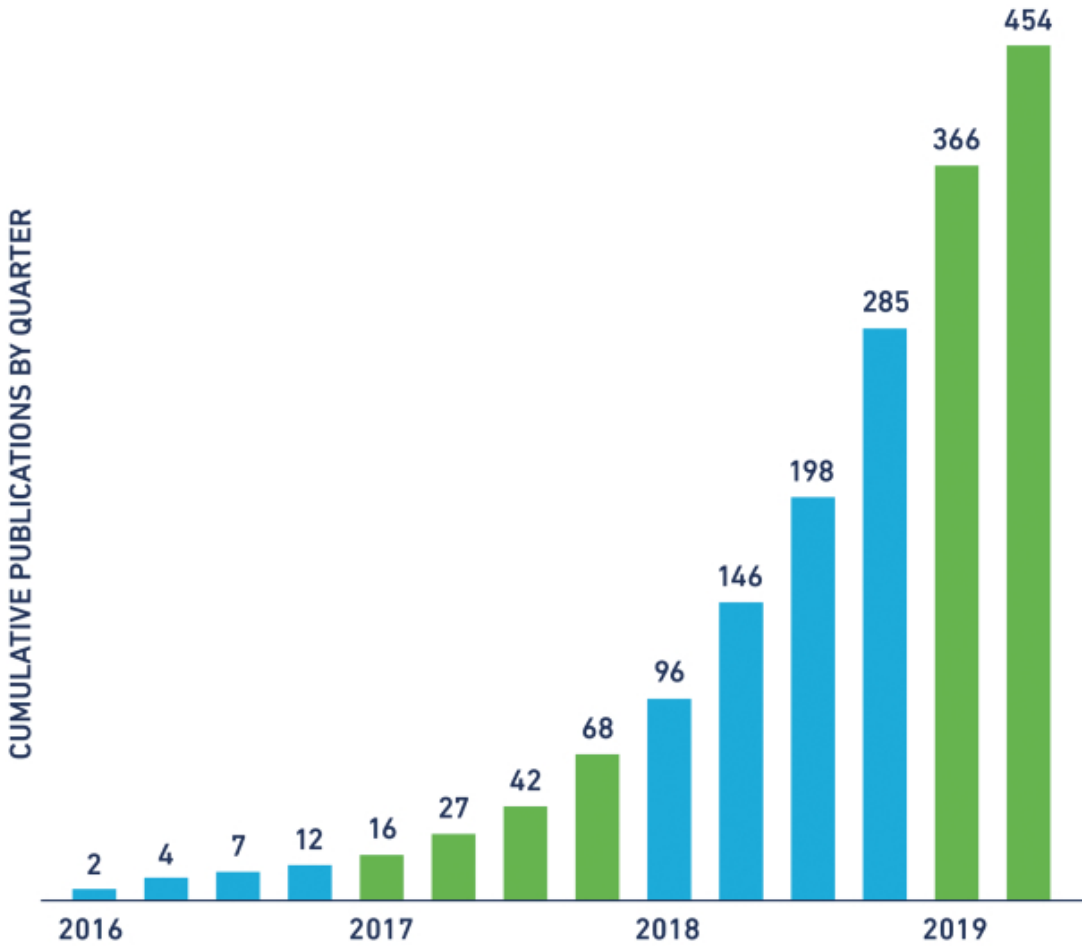
We have seen robust quarter-over-quarter growth in the number of publications commensurate with our commercial growth and success:



These publications describe, for example, the use of our products to:

- Construct a molecular map of cellular differentiation during early development in mice;
- Understand kidney tumors by studying cell types and compositions in malignant versus normal cells;
- Track patients with aggressive skin cancer undergoing immunotherapy to understand how the body develops resistance to immunotherapy;
- Understand why multiple myeloma, a cancer originating from plasma cells, is symptomatic or asymptomatic depending on underlying cell types, and identify rare circulating tumor cells as a potential early diagnostic indicator;
- Demonstrate that transcriptional diversity in cutaneous T cell lymphomas can be used to predict disease stage and guide treatment;
- Identify non-essential genes in humans;

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- Identify structural rearrangements in cancer; and
- Study the microbiome.

Research and development

Our research and development teams have designed and developed our proprietary products using an interdisciplinary approach that combines expertise across the fields of chemistry, molecular biology, microfluidics, hardware, computational biology and software engineering. Our research and development groups work together in cross-functional project teams; an approach that has been key to our success to date. Our research and development teams are currently located in our headquarters in Pleasanton, California and in Stockholm, Sweden.

The overarching goals of our research and development programs are to continue to bring new technologies to market that address the most pressing questions in biology and to provide exponential advances in human health. To this end, we plan to focus our research and development efforts on the following areas:

Improve the performance of our existing solutions. We plan to improve our existing assays and software. These improvements may provide increased sensitivity to capture greater amounts of signal from biological analytes, broader types of biological samples that can be interrogated with our solutions and larger amounts of biological information that can be obtained using our software.

Develop new solutions for our Chromium platform. We plan to expand the range of solutions that are available on our Chromium platform to allow researchers access to new types of biological information. For example, we are planning to develop additional *multi-omics* solutions on our Chromium platform for simultaneous interrogation of different classes of analytes.

Develop our Visium platform. We plan to introduce a product that offers high spatial resolution, high sensitivity, efficient workflow and analysis and visualization software. We are working to develop new technologies for our Visium platform that will further enhance the spatial resolution, usability and automation of our platform.

Improve and develop new capabilities for our Chromium instruments. We plan to develop new capabilities that would improve the usability and increase the performance of our Chromium instruments by increasing automation, throughput, workflow visibility or troubleshooting capabilities.

Develop combined software and workflows across multiple solutions. We plan to develop workflows that enable users to run multiple assays on the same biological samples and software that simultaneously analyzes the data generated from these multiple assays. We plan to do this for key solution combinations where the information obtained from the two solutions is highly complementary.

Investigate new technologies. We will seek to both develop and acquire new technologies that could be additive to or complementary with our current portfolio.

Our research and development costs were $32.2 million and $47.5 million for the years ended December 31, 2017 and 2018, respectively, and $23.3 million and $33.0 million for the six months ended June 30, 2018 and 2019, respectively. In-process research and development costs, consisting of costs incurred to acquire intellectual property for research and development were $62.4 million for the year ended December 31, 2018 and $0 for the six months ended June 30, 2019. As of June 30, 2019, we employed 192 employees in research and development. Looking forward, we will continue to invest in efforts to support the ongoing development of our instruments, consumables and software, as well as enhance the overall performance of our solutions.

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Commercial

Commercial team

We began the full launch of our first product in mid-2015 and have sold thousands of products globally. Our customers primarily include academic, government, biopharmaceutical, biotechnology and other institutions focused on life sciences research. We sell our products primarily through our own direct sales force in North America and certain regions of Europe. As of June 30, 2019, our commercial organization consisted of 192 full time employees, including 78 commissioned sales representatives, many with Ph.D. degrees and many with significant industry experience. We sell our products through third-party distributors in Asia, certain regions of Europe, South America, the Middle East and Africa. We have sold products in approximately 40 countries.

For both the year ended December 31, 2018 and the six months ended June 30, 2019, no single customer, including distributors, represented greater than 10% of our business. For both the year ended December 31, 2018 and the six months ended June 30, 2019, sales to academic institutions represented approximately 70% of our direct sales revenue. We expect that sales to biopharmaceutical companies will represent a growing proportion of our revenue in the future.

Commercial strategy

Our products are integrated solutions comprised of instruments, consumables and software. We aim to drive customer adoption and the installed base of our Chromium instruments which then forms a base of users who drive revenue by purchasing our consumables. Our products are designed to be easy to install and use without the need for extensive training.

Our customers primarily include academic, government, biopharmaceutical, biotechnology and other institutions. Our strategy typically involves targeting key opinion leaders during the initial phase of our product launches, after which we aim to expand adoption of our products across a broader base of customers. As our customer base has grown, we have been able to leverage our larger installed base of instruments to accelerate the adoption of new solutions. Approximately half of our customers purchased our consumables relating to more than one of our solutions in both the year ended December 31, 2018 and the six months ended June 30, 2019.

Our commercial strategy focuses on ensuring our customers are successful with our products. These successes often result in publications which can drive increased public awareness and further market adoption. Since our first product launch in 2015, there have been more than 500 publications by researchers using data generated by our products.

Our direct sales and marketing efforts are targeted at the principal investigators, research scientists, department heads, research laboratory directors and core facility directors at leading academic institutions, biopharmaceutical companies and publicly and privately-funded research institutions who control the buying decision. Due to the pricing of our instruments and consumables, the buying decision is typically made by the principal investigator rather than by committee or department chair, which we believe simplifies the purchasing decision and has helped accelerate adoption of our products. The sales cycle of our Chromium Controller instrument is typically between four and six months.

We also target researchers who do not own their own Chromium Controller instrument, but who have access to one, which we refer to as “halo users”. By sharing one instrument across groups within an institution, multiple halo users are able to utilize the instrument for their own research and experiments, contributing meaningfully to consumable pull-through on just one instrument. Halo users help drive consumable revenue and utilization of our consumable products and may become future purchasers of a Chromium instrument.

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The use of our products requires the access to, but not necessarily the ownership of a third-party next-generation sequencer, since sequencers are often accessible as a shared resource. This broadens our target customer base beyond those who own a next-generation sequencer.

We increase awareness of our products among our target customers through direct sales calls, trade shows, seminars, academic conferences, web presence, social media and other forms of internet marketing. We supplement these traditional marketing efforts by fostering an active online community of users of our products consisting of communities, forums and blogs with internally generated and user-generated content. We also provide education and training resources, both online and in person.

Suppliers and manufacturing

Consumables

The majority of our consumable products are manufactured in-house at our facilities in Pleasanton, California. These manufacturing operations include: gel bead generation, surfactant synthesis and emulsion oil formulation, reagent formulation and tube filling, microfluidic chip manufacturing, kit assembly and packaging as well as analytical and functional quality control testing. We achieved ISO 9001:2015 certification in the fourth quarter of 2017, which covers design, development, manufacturing, distribution, service and sales.

We obtain some components of our consumables from third-party suppliers. While some of these components are sourced from a single supplier, we have qualified second sources for several of our critical reagents, including microfluidic chips, arrays and oligonucleotides. We believe that having dual sources for our components helps reduce the risk of a production delay caused by a disruption in the supply of a critical component. For further discussion of the risks relating to our third-party suppliers, see the section titled "*Risk factors—Risks related to our business and industry—We are dependent on single source and sole source suppliers for some of the components and materials used in our products and the loss of any of these suppliers could harm our business*".

Instruments

We outsource manufacturing for our Chromium Controller to two qualified contract manufacturers. These manufacturers have represented to us that they each maintain ISO 9001 and ISO 13485 certification. Our recently announced Chromium Connect will include an automated workflow liquid handling robot which will be manufactured by our partner.

Employees

As of June 30, 2019, we had 500 employees, including 192 in research and development, 192 in sales, marketing, support and business development, 74 in general and administrative and 42 in manufacturing. None of our United States employees are represented by a labor union or covered under a collective bargaining agreement and we consider our relationship with our employees to be positive. As of June 30, 2019, 426 of our employees were employed in the United States and 74 were employed outside the United States.

Facilities

Our corporate headquarters, research and development facilities and manufacturing and distribution centers are located in Pleasanton, California, where we lease approximately 200,000 square feet of space under leases expiring between December 2020 and September 2029. These leases include our global headquarters and research and development center occupying approximately 150,000 square feet in Pleasanton, California. We do not own any real property and believe that our current facilities, together with our global headquarters and research and development center, are sufficient to meet our ongoing needs and that, if we require additional space, we will be able to obtain additional facilities on commercially reasonable terms.

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Competition

The life sciences market is highly competitive. There are other companies, both established and early-stage, that have indicated that they are designing, manufacturing and marketing products for, among other things, genomics analysis, single cell analysis and spatial analysis. These companies include Becton, Dickinson and Company, Bio-Rad Laboratories, Inc. and Nanostring Technologies, Inc., each of which has products that compete to varying degrees with some but not all of our product solutions, as well as a number of other emerging and established companies. Some of these companies may have substantially greater financial and other resources than us, including larger research and development staff or more established marketing and sales forces. Other competitors are in the process of developing novel technologies for the life sciences market which may lead to products that rival or replace our products.

However, we believe we are substantially differentiated from our competitors for many reasons, including our position as a leader in a large and growing market, proprietary technologies, rigorous product development processes and scalable infrastructure, customer experience and multidisciplinary teams. We believe our customers favor our products and company because of these differentiators.

For further discussion of the risks we face relating to competition, see the section titled "*Risk factors—Risks related to our business and industry—The life sciences technology market is highly competitive. If we fail to compete effectively, our business and operating results will suffer*".

Government regulation

The development, testing, manufacturing, marketing, post-market surveillance, distribution, advertising and labeling of certain of medical devices are subject to regulation in the United States by the Center for Devices and Radiological Health of the U.S. Food and Drug Administration ("FDA") under the Federal Food, Drug, and Cosmetic Act ("FDC Act") and comparable state and international agencies. A medical device is an instrument, apparatus, implement, machine, contrivance, implant, *in vitro* reagent or other similar or related article, including any component part or accessory, which is (1) intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals, or (2) intended to affect the structure or any function of the body of man or other animals and which does not achieve any of its primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of any of its primary intended purposes. Medical devices to be commercially distributed in the United States must receive from the FDA either clearance of a premarket notification, known as 510(k), or premarket approval pursuant to the FDC Act prior to marketing, unless subject to an exemption. None of our products are currently medical devices and all of our products are currently designed "For Research Use Only. Not for use in diagnostic procedures" ("RUO") products, as they are not meant for clinical applications. RUO products are not regulated as medical devices and are therefore not subject to the regulatory requirements enforced by the FDA. The products must bear the statement: "For Research Use Only. Not for Use in Diagnostic Procedures". RUO products cannot make any claims related to safety, effectiveness or diagnostic utility and they cannot be intended for human clinical diagnostic use. In November 2013, the FDA issued a final guidance on products labeled RUO, which, among other things, reaffirmed that a company may not make any clinical or diagnostic claims about an RUO product. The FDA will also evaluate the totality of the circumstances to determine if the product is intended for diagnostic purposes. If FDA were to determine, based on the totality of circumstances, that our products labeled and marketed for RUO are intended for diagnostic purposes, they would be considered medical devices that will require clearance or approval prior to commercialization. Further, sales of devices for diagnostic purposes may subject us to additional healthcare regulation. We continue to monitor the changing legal and regulatory landscape to ensure our compliance with any applicable rules, laws and regulations.

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For further discussion of the risks we face relating to regulation, see the section titled "*Risk factors—Risks related to our business and industry—Our products could become subject to government regulation and the regulatory approval and maintenance process for such products may be expensive, time-consuming and uncertain both in timing and in outcome*".

Intellectual property

Our success depends in part on our ability to obtain and maintain intellectual property protection for our products and technology. We utilize a variety of intellectual property protection strategies, including patents, trademarks, trade secrets and other methods of protecting proprietary information.

As of June 30, 2019, worldwide we owned or exclusively licensed over 175 issued or allowed patents and 470 pending patent applications. We also license additional patents on a non-exclusive and/or territory restricted basis. Patent rights generally have a term of twenty years from the date in which they were filed. We own registered trademarks on 10X GENOMICS and product related brand names in the United States and worldwide.

We license certain U.S. and foreign patents and patent applications from various third parties for use in our products and technology. Some of these license agreements provide use the exclusive right to practice the licensed intellectual property subject to specific field or territory restrictions and certain fee and royalty arrangements. Subject to common termination rights, these exclusive license agreements typically are in force until the last of the licensed patents expires or, in some cases, upon our failure to achieve specified sales volume thresholds. Certain of these agreements also require that any products related to the licensed patents be substantially manufactured in the United States.

In connection with our acquisition of Spatial Transcriptomics, we are required to make contingent payments to the sellers based on revenue from sales of Spatial Transcriptomics products and our soon to be introduced Visium products, for the years ended December 31, 2019 through December 31, 2022. These contingent payments are equal to a percentage in the teens multiplied by such revenue. Pursuant to the license agreement we entered into with The Board of Trustees of the Leland Stanford Junior University ("Stanford"), we are required to pay Stanford a low single-digit royalty percentage based on the net revenue of certain ATAC-seq products during the applicable term of the licensed patents. Pursuant to the license agreement we entered into with the President and Fellows of Harvard University ("Harvard"), we are required to pay Harvard a low single-digit royalty percentage based on the net revenue of certain products covered by the licensed patents during the applicable term of those patents. For the years ended December 31, 2017 and 2018 and during the six months ended June 30, 2019, we made aggregate contingent and royalty payments under the Spatial Transcriptomics acquisition agreement, Stanford license agreement and Harvard license agreement, collectively, of less than $2.0 million, less than $4.0 million and less than $4.0 million, respectively. We expect the size of these payments to grow as our business grows and particularly as we launch our anticipated Visium products in late 2019.

The patents we own expire beginning in 2033 and the patents we exclusively license expire beginning in 2028. The Harvard license is exclusive in the field of sequencing sample preparation and single cell analysis and is projected to terminate in 2034. The Stanford license is exclusive in all fields and the initial exclusivity period of the license terminates in 2025, however we have the option to extend the exclusivity period for additional one-year terms if we meet certain minimum sales thresholds beginning in 2025. If the exclusivity period ends or we fail to extend the exclusivity period, we retain a non-exclusive license to the applicable patents. The Stanford license is projected to terminate in 2038. Both the Harvard and Stanford licenses are worldwide licenses.

We intend to pursue additional intellectual property protection to the extent we believe it would be beneficial and cost-effective. We cannot provide any assurance that any of our current or future patent applications will result in the issuance of patents, or that any of our current or future issued patents will effectively protect any of our products or technology from infringement or prevent others from commercializing infringing products or technology.

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For further discussion of the risks relating to intellectual property, see the section titled "*Risk Factors—Risks related to litigation and our intellectual property*".

Legal proceedings

We are regularly subject to claims, lawsuits, arbitration proceedings, administrative actions and other legal and regulatory proceedings involving commercial disputes, competition, intellectual property disputes and other matters, and we may become subject to additional types of claims, lawsuits, arbitration proceedings, administrative actions, government investigations and legal and regulatory proceedings in the future and as our business grows, including proceedings related to product liability or our acquisitions, securities issuances or our business practices, including public disclosures about our business. Our success depends in part on our non-infringement of the patents or proprietary rights of third parties. Third parties have asserted and may in the future assert that we are employing their proprietary technology without authorization. As we enter new markets or introduce new products, we expect that competitors will likely claim that our products infringe their intellectual property rights, including as part of a business strategy to impede our successful competition. There are inherent uncertainties in these legal matters, some of which are beyond management's control, making the ultimate outcomes difficult to predict. We are currently involved in the following litigation matters:

The 2015 Delaware Action

In February 2015, Raindance Technologies, Inc. ("Raindance") and the University of Chicago filed suit against us in the U.S. District Court for the District of Delaware, accusing that substantially all of our products that use our GEM microfluidic chips are infringing seven U.S. patents owned by or exclusively licensed to Raindance (the "Delaware Action"). In May 2017, Bio-Rad was substituted as the plaintiff following its acquisition of Raindance. A jury trial was held in November 2018. The jury found that all of our accused products infringed one or more of U.S. Patent Nos. 8,304,193, 8,329,407 and 8,889,083. The jury also concluded that our infringement was willful and awarded Bio-Rad approximately $24 million in damages. Post-trial, Bio-Rad moved for a permanent injunction, treble damages for willful infringement, attorneys' fees, supplemental damages for the period from the second quarter of 2018 through the end of the trial as well as pre- and post-judgment interest.

The Court denied Bio-Rad's request for attorneys' fees and enhanced damages for willful infringement. The Court awarded supplemental damages for the period from the second quarter of 2018 through the end of trial as well as pre- and post-judgment interest. The Court entered final judgment against us in the amount of approximately $35 million in August 2019. There could be additional future damages from the final judgment until the patents in suit expire in 2023.

In the fourth quarter of 2018, we began recording an accrual for estimated royalties as cost of revenue. This accrual is based on an estimated royalty rate of 15% of worldwide sales of our Chromium instruments operating our GEM microfluidic chips and associated consumables. As of June 30, 2019, we had accrued a total of $55.3 million relating to this matter which includes the $35 million judgment and our estimated 15% royalty for sales through that date.

The Court also granted Bio-Rad a permanent injunction against our GEM microfluidic chips and associated consumables that were found to infringe the Bio-Rad patents, which have historically constituted substantially all of our product sales. However, under the injunction, we are permitted to continue to sell our GEM microfluidic chips and associated consumables for use with our historical installed base of instruments provided that we pay a royalty of 15% into escrow on our net revenue related to such sales. We have appealed the injunction to the Federal Circuit and expect that it will not take effect until the Federal Circuit rules on our request for a stay of the injunction.

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We have dedicated significant resources to designing and manufacturing our Next GEM microfluidic chips which use fundamentally different physics from our GEM microfluidic chips. Neither the jury verdict nor the injunction relate to our Next GEM microfluidic chips based on our new proprietary design and associated consumables which we launched in May 2019 for three of our single cell solutions – Single Cell Gene Expression, Single Cell Immune Profiling and Single Cell ATAC. We currently expect that, by the end of the third quarter of 2019, all Chromium instruments that we sell will operate exclusively with our Next GEM solutions and that our Chromium products utilizing our Next GEM microfluidic chips will constitute substantially all of our Chromium sales by the end of 2020.

The ITC 1068 Action

On July 31, 2017, Bio-Rad and Lawrence Livermore National Security, LLC filed a complaint against us in the U.S. International Trade Commission ("ITC") pursuant to Section 337 of the Tariff Act of 1930, accusing substantially all of our products of infringing U.S. Patents Nos. 9,089,844, 9,126,160, 9,500,664, 9,636,682 and 9,649,635 (the "ITC 1068 Action"). Bio-Rad is seeking an exclusion order preventing us from importing the accused microfluidic chips, including (1) our GEM microfluidic chip, (2) our gel bead manufacturing microfluidic chip and (3) our Next GEM microfluidic chip, into the United States and a cease and desist order preventing us from selling such imported chips. Prior to the introduction of our Next GEM microfluidic chips and related products, substantially all of our product sales used GEM microfluidic chips. An evidentiary hearing for the ITC 1068 Action was held in May of 2018 and the presiding judge issued an Initial Determination in September 2018, finding that our GEM microfluidic chips infringe the '664, '682 and '635 patents but not the '160 patent. The judge further found that our gel bead manufacturing microfluidic chip and our Next GEM microfluidic chip do not infringe any claims asserted against them.

The judge recommended entry of an exclusion order against our GEM microfluidic chips, which are currently being imported into the United States. If the ITC were to adopt the judge's recommendation regarding the exclusion order, we would be prevented from importing such chips, which are used in substantially all of our products, into the United States. The judge also recommended a cease and desist order that would prevent us from selling such imported chips. The ITC is not reviewing the judge's findings that our GEM microfluidic chips directly infringe the '664, '682 and '635 patents. The ITC is currently reviewing the judge's findings that (1) we indirectly infringe the '682 and '635 patents, (2) our gel bead manufacturing microfluidic chip does not infringe certain claims in the '664 patent and (3) our Next GEM microfluidic chip does not infringe certain claims in the '160 and '664 patents. A Final Determination is expected to be issued in late September 2019. The Final Determination is subject to a 60-day presidential review period before taking effect. If the Initial Determination were to be upheld, then we would be unable to import our GEM microfluidic chips and sell such imported chips, which are used in substantially all of our products. The judge recommended a bond of 100% of the entered value of accused products imported during the Presidential review period.

In order to allow our customers to continue their important research, we have dedicated significant resources to developing the capabilities to manufacture our microfluidic chips in the United States prior to the entry of an exclusion order or cease and desist order which could take effect in late November 2019. Prior to the second quarter of 2019, all of our microfluidic chips were manufactured outside of the United States. We expect our United States manufacturing facilities to achieve volume production of certain of our GEM microfluidic chips accounting for the majority of our United States consumable revenue beginning in the third quarter of 2019.

The Northern District of California Action

On July 31, 2017, Bio-Rad and Lawrence Livermore National Security, LLC also filed suit against us in the U.S. District Court for the Northern District of California, alleging that substantially all of our products infringe U.S. Patents Nos. 9,216,392, 9,347,059 and the five patents asserted in the ITC 1068 Action. The complaint seeks

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injunctive relief, unspecified monetary damages, costs and attorneys' fees. This litigation has been stayed pending resolution of the ITC 1068 Action.

The Germany Action

On February 13, 2018, Bio-Rad filed suit against us in Germany in the Munich Region Court alleging that our Chromium instruments, GEM microfluidic chips and certain accessories infringe German Utility Model No. DE 20 2011 110 979. Bio-Rad seeks unspecified damages and an injunction prohibiting sales of these products in Germany and requiring us to recall these products sold in Germany subsequent to February 11, 2018. The accused GEM microfluidic chips are currently manufactured in Germany and are currently used in substantially all of our solutions. An initial hearing was held on November 27, 2018, and a subsequent hearing was held on May 15, 2019. The Court has not yet issued a ruling on the merits.

The 2018 Delaware Action

On October 25, 2018, Bio-Rad filed suit against us in the U.S. District Court for the District of Delaware alleging that substantially all of our products infringe U.S. Patent Nos. 9,562,837 and 9,896,722. Bio-Rad seeks injunctive relief, unspecified monetary damages, costs and attorneys' fees. Discovery is in progress.

The Becton Dickinson Action

On November 15, 2018, Becton, Dickinson and Company and Cellular Research, Inc. filed suit against us in the U.S. District Court for the District of Delaware, alleging that we infringe U.S. Patent Nos. 8,835,358, 9,845,502, 9,315,857, 9,816,137, 9,708,659, 9,290,808, 9,290,809, 9,567,645, 9,567,646, 9,598,736 and 9,637,799. The complaint asserted that our instruments, consumables and software that comprise our Single Cell Gene Expression solution, Single Cell Immune Profiling solution and Spatial Transcriptomics product infringe these patents. Plaintiffs seek injunctive relief, unspecified monetary damages, costs and attorneys' fees. On January 18, 2019, we filed a motion to dismiss certain of the asserted claims on the grounds that they are directed to patent ineligible abstract ideas. The Court has not yet ruled on or set a hearing date for the motion. Discovery is in progress.

The ITC 1100 Action

On January 11, 2018, we filed a complaint against Bio-Rad at the ITC pursuant to Section 337 of the Tariff Act of 1930 alleging that Bio-Rad infringes our U.S. Patent Nos. 9,644,204, 9,689,024, 9,695,468 and 9,856,530 (the "ITC 1100 Action"). The judge issued an Initial Determination on July 12, 2019 finding that Bio-Rad infringes the '024, '468 and '530 patents. The judge also found all of our asserted patents to be valid and rejected Bio-Rad's claim of ownership in all of the asserted patents. The Target Date for the Final Determination is scheduled for November 12, 2019, when we expect the ITC to issue an exclusion order preventing Bio-Rad from importing into the United States infringing microfluidic devices, components thereof and products containing same, including the ddSEQ single cell analysis products. We also expect the ITC to issue a cease and desist order preventing Bio-Rad from selling such imported products in the United States.

For further discussion of the risks relating to intellectual property and our pending litigation, see the section titled "*Risk factors—Risks related to litigation and our intellectual property*".

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Management

The following table sets forth information regarding our executive officers and directors as of August 16, 2019:

Name	Age	Position
Serge Saxonov	42	Chief Executive Officer and Director
Benjamin J. Hindson	44	Chief Scientific Officer, President and Director
Bradford J. Crutchfield	57	Chief Commercial Officer
Justin J. McAnear	44	Chief Financial Officer
Jean M. Philibert	59	Chief People Officer
Eric S. Whitaker	52	General Counsel
John R. Stuelpnagel(1)(2)	61	Chairman of our board of directors
Paul A. Conley(3)	51	Director
Sridhar Kosaraju(1)	41	Director
Mathai Mammen(3)	52	Director
Bryan E. Roberts(1)(2)	52	Director
Shehnaaz Suliman(3)	48	Director

(1) Member of the audit committee.

(2) Member of the compensation committee.

(3) Member of the nominating and corporate governance committee.

Executive officers

Serge Saxonov, Ph.D. co-founded 10x Genomics and has served as our Chief Executive Officer and on our board of directors since July 2012. Dr. Saxonov also served as our President from July 2012 until October 2012. Prior to co-founding our company, Dr. Saxonov was Vice President of Applications at QuantaLife, a privately-held life sciences company that developed and commercialized a droplet digital polymerase chain reaction platform, from May 2010 to April 2012. Dr. Saxonov was Founding Architect and Director of research and development at 23andMe, a privately held personal genomics and biotechnology company, from June 2006 until May 2010. Dr. Saxonov received a Ph.D. in biomedical informatics from Stanford University and an A.B. in applied mathematics from Harvard College.

We believe that Dr. Saxonov is qualified to serve on our board of directors because of his experience as our co-founder and Chief Executive Officer, industry knowledge, previous experience and extensive academic training.

Benjamin J. Hindson, Ph.D. co-founded 10x Genomics in July 2012 and has served as our Chief Scientific Officer and President since October 2012 and has served on our board of directors since July 2012. Dr. Hindson served as our President of Technology and Treasurer from July 2012 until October 2012 and Secretary from October 2012 until April 2014. Prior to co-founding our company, Dr. Hindson was Co-founder and Chief Scientific Officer of QuantaLife from August 2008 until its sale to Bio-Rad Laboratories in October 2011. From 2002 to 2008, Dr. Hindson served in various positions at Lawrence Livermore National Laboratory, in the Chemical and Biological Weapons Non-proliferation Program. Dr. Hindson earned his B.Sc. in Chemistry and his Ph.D. in Chemistry from Deakin University, Australia.

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We believe that Dr. Hindson is qualified to serve on our board of directors because of his experience as our co-founder, President and Chief Scientific Officer, industry knowledge, previous experience and extensive academic training.

Bradford J. Crutchfield has served as our Chief Commercial Officer since February 2017. From June 2015 to February 2017, Mr. Crutchfield served as Qiagen's senior vice president, life sciences business area. Prior to that, from October 2014 to April 2015, Mr. Crutchfield served as vice president and general manager, Europe, Middle East & Africa, for Illumina. From 1985 to 2014, Mr. Crutchfield held positions with Bio-Rad Laboratories including executive vice president and president of the Life Science Group. From June 2013 until October 2014, he was a director of Nanostring Technologies. Mr. Crutchfield holds a B.S. in Physiology from the University of California, Davis.

Justin J. McAnear has served as our Chief Financial Officer since October 2018. From August 2015 to October 2018, Mr. McAnear was the Vice President of Worldwide Finance and Operations at Tesla. From September 2013 to August 2015, Mr. McAnear served as a Finance Director at Apple in Corporate FP&A and Worldwide Operations and from February 2011 to September 2013, Mr. McAnear served as a Senior Finance Manager in Worldwide Operations. Mr. McAnear began his corporate finance career at Johnson & Johnson in August 2006 and left in February 2011. Mr. McAnear served over nine years in the U.S. Navy as an aviator and is a graduate of the U.S. Naval Academy in Annapolis, MD, where he earned his B.S. degree in Systems Engineering. He also holds an M.B.A. in Finance from the University of San Diego.

Jean M. Philibert has served as our Chief People Officer since April 2018. From January 2016 until March 2018, Ms. Philibert served as Senior Vice President of Human Resources at Analog Devices. From December 2014 to December 2015, Ms. Philibert served as the Chief People Officer at KIXEYE. In 1999, Ms. Philibert joined EMC and served as a Senior Director of Human Resources until November 2014. She earned a M.S. in Industrial Relations and Human Resources from Loyola University and a B.A. in French and Art History from the University of Iowa.

Eric S. Whitaker has served as our General Counsel since July 2017. Prior to joining our company, Mr. Whitaker served as the Chief Legal Officer of Nutanix from September 2014 to May 2017, the Chief Legal Officer of SanDisk from January 2013 to September 2014, and General Counsel of Tesla from October 2010 to November 2012. Prior to these roles, Mr. Whitaker served as General Counsel for a number of technology companies since 1999. Mr. Whitaker also worked as an attorney at Latham & Watkins LLP. Mr. Whitaker holds a J.D. from Stanford Law School and a B.A. in Politics from Princeton University.

Non-employee directors

John R. Stuelpnagel, D.V.M. has been Chairman of our board of directors since August 2013. In addition, Dr. Stuelpnagel co-founded and was Executive Chairman of Ariosa Diagnostics from October 2009 to January 2015 when that company was sold to Roche. He was also the Chairman of Sequenta from November 2010 to January 2015 when that company was merged with Adaptive Biotechnologies where he continued as a member of their board of directors from January 2015 to November 2017. Dr. Stuelpnagel is the Chairman of Fabric Genomics since August 2009, the Chairman of Inscripta since April 2017, the Chairman of Element Biosciences since September 2017, and a member of the board of directors for Encoded Therapeutics since May 2017. Previously, Dr. Stuelpnagel co-founded Illumina in 1998 where he worked until March 2009. Prior to Illumina, Dr. Stuelpnagel was an associate at CW Group from 1997 to 1998. Dr. Stuelpnagel received his B.S. in Biochemistry and his Doctorate in Veterinary Medicine from the University of California, Davis and his M.B.A. from the University of California, Los Angeles.

We believe that Dr. Stuelpnagel is qualified to serve on our board of directors because of his experience as a co-founder of life sciences and pharmaceutical companies, previous and current experience serving as a director and executive officer of other life sciences companies and his extensive experience in business.

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Paul A. Conley, Ph.D. has served on our board of directors since November 2013. Dr. Conley is a Partner and Managing Director at Paladin Capital Group, a prominent venture capital investment firm, a position he has held since November 2007. Dr. Conley also serves on the board of directors of many companies, several in the biotechnology and related fields, including Twist Bioscience, TOMA Bioscience and General Automation Laboratory Technologies. Dr. Conley holds a B.S. in Mechanical Engineering and an M.S. in Mechanical & Aerospace from the University of Virginia, an M.S. in Bioengineering and a Ph.D. in Engineering Sciences in Mechanical Engineering from the University of California, San Diego.

We believe that Dr. Conley is qualified to serve on our board of directors because of his extensive experience in the biotechnology industry, his service on a number of boards which provides an important perspective on operations and corporate governance matters, and his education in biotechnology.

Sridhar Kosaraju has served on our board of directors since April 2019. Mr. Kosaraju has served as the Chief Financial Officer and Head of Strategy of Penumbra since March 2015. Prior to joining Penumbra, he worked in investment banking for J.P. Morgan Securities LLC ("J.P. Morgan") from 1999 to May 2015, where he held a variety of positions with successively greater responsibility, most recently Managing Director of Equity Capital Markets, Head of Healthcare Equity Capital Markets and co-Head of Technology, Media, Telecom Equity Capital Markets. Prior to entering J.P. Morgan's equity capital markets group in 2006, Mr. Kosaraju served in various practice groups at J.P. Morgan, including Equity Derivatives from 2003 to 2006 and Technology, Media, Telecom Investment Banking Coverage from 1999 to 2003. He received a B.S. from Massachusetts Institute of Technology in 1999.

We believe that Mr. Kosaraju is qualified to serve on our board of directors because of his experiences in finance and the healthcare sector, including serving as an executive at a public healthcare technology company.

Mathai Mammen, M.D., Ph.D. has served on our board of directors since August 2017. Dr. Mammen currently serves as global head, science and development at the Janssen Pharmaceutical Companies of Johnson & Johnson. Prior to joining Janssen Pharmaceutical Companies in June 2017, Dr. Mammen was Senior Vice President at Merck Research Laboratories from March 2016 to June 2017. Prior to Merck, Dr. Mammen led research and development at Theravance, a company he co-founded in 1997 until March 2016. In 2014, he and the Theravance Leadership Team separated Theravance into two publicly traded companies: Innoviva and Theravance Biopharma. Dr. Mammen received his M.D. from Harvard Medical School/Massachusetts Institute of Technology (HST program) and his Ph.D. in Chemistry from Harvard University's Department of Chemistry. He received his B.Sc. in Chemistry and Biochemistry from Dalhousie University in Halifax, Nova Scotia.

We believe Dr. Mammen is qualified to serve on our board of directors because of his significant academic training and current and previous experience serving as a director and co-founder of another life sciences company, as well as his operating experience with several life sciences companies.

Bryan E. Roberts, Ph.D. has served on our board of directors since November 2013. Dr. Roberts joined Venrock, a venture capital firm, in 1997, where he currently serves as a Partner. Dr. Roberts currently serves as the Chairman of the board of directors of Achaogen and Castlight Health, which he co-founded, as well as a director on the boards of several private companies. Dr. Roberts previously served on the board of directors of athenahealth from 1999 to 2009, XenoPort from 2000 to 2007, Sirna Therapeutics from 2003 to 2007, Vitae Pharmaceuticals from 2001 to 2016, Zeltiq Aesthetics from 2008 to 2016, Ironwood Pharmaceuticals from 2001 to 2016 and Hua Medicine from 2010 to 2018. From 1989 to 1992, Dr. Roberts worked in the corporate finance department of Kidder, Peabody & Co., a brokerage company. Dr. Roberts received a B.A. in Chemistry from Dartmouth College and a Ph.D. in Chemistry and Chemical Biology from Harvard University.

We believe that Dr. Roberts is qualified to serve on our board of directors because of his experiences with facilitating the growth of health care, health care IT and biotechnology companies.

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Shehnaaz Suliman, M.D., M.Phil., M.B.A. has served on our board or directors since August 2019. In addition, Dr. Suliman has served on the board of directors for Ultragenyx Pharmaceutical Inc. since January 2019. Dr. Suliman served as Senior Vice President, Corporate Development and Strategy of Theravance Biopharma, Inc, from July 2017 to March 2019. Prior to her position at Theravance, Dr. Suliman worked for Roche and Genentech, Inc., as Group Leader and Project Team Leader in the R&D Portfolio Management and Operations Group at Genentech from September 2010 to May 2015 and then as Vice President and Global Therapeutic Area Head, Roche Partnering from June 2015 to July 2017. Prior to Genentech, Dr. Suliman held various management roles of increasing responsibility at Gilead Sciences, Inc., between January 2005 and September 2010. Prior to Gilead, Dr. Suliman was an investment banker with Lehman Brothers and Petkevich & Partners. She has previously served as a member of the board of directors of Parvus Therapeutics, Inc., a private biopharmaceutical company from October 2017 to July 2019. Dr. Suliman received her M.D. (MB, ChB) at the University of Cape Town Medical School, South Africa, and holds an M.B.A, with distinction, and M.Phil. in Development Studies degrees from Oxford University, where she was a Rhodes Scholar.

We believe that Dr. Suliman is qualified to serve on our board of directors due to her extensive operational experience with global biopharmaceutical and life sciences companies, and particularly her expertise in business development and corporate strategy.

Family relationships

There are no family relationships among any of our executive officers or directors.

Board of directors structure

Upon completion of this offering, our board of directors will consist of eight members. Our board of directors has determined that each of Messrs. Stuelpnagel, Conley, Kosaraju, Mammen and Roberts and Ms. Suliman is independent under the applicable Nasdaq listing rules.

Our directors will be divided into three classes serving staggered three-year terms. Class I, Class II and Class III directors will serve until our annual meetings of stockholders in 2020, 2021 and 2022, respectively. The class I directors will consist of Messrs. Hindson, Saxonov and Stuelpnagel. The class II directors will consist Messrs. Conley and Roberts. The class III directors will consist of Messrs. Kosaraju and Mammen and Ms. Suliman. At each annual meeting of stockholders, directors will be elected to succeed the class of directors whose terms have expired. This classification of our board of directors could have the effect of increasing the length of time necessary to change the composition of a majority of the board of directors.

Board of directors committees

Our board of directors has three standing committees: the audit committee; the compensation committee; and the nominating and corporate governance committee. Each committee is governed by a charter which will be available on our website following completion of this offering.

Audit committee

The members of our audit committee are Messrs. Kosaraju, Roberts and Stuelpnagel. Mr. Kosaraju is the chairperson of our audit committee. The composition of our audit committee meets the requirements for independence under the current Nasdaq listing rules and Rule 10A-3 of the Exchange Act. Each member of our audit committee is financially literate and a person with “appropriate accounting or related financial management expertise” under Rule 3.10(2) and 3.21 of the Nasdaq listing rules. In addition, our board of directors has determined that Mr. Kosaraju is an “audit committee financial expert” within the meaning of the

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SEC rules. This designation does not impose on such directors any duties, obligations or liabilities that are greater than are generally imposed on members of our audit committee and our board of directors. Our audit committee is directly responsible for, among other things:

- appointing, retaining, compensating and overseeing the work of our independent registered public accounting firm;
- assessing the independence and performance of the independent registered public accounting firm;
- reviewing with our independent registered public accounting firm the scope and results of the firm's annual audit of our financial statements;
- overseeing the financial reporting process and discussing with management and our independent registered public accounting firm the interim and annual financial statements that we will file with the SEC;
- pre-approving all audit and permissible non-audit services to be performed by our independent registered public accounting firm;
- reviewing policies and practices related to risk assessment and management;
- reviewing our accounting and financial reporting policies and practices and accounting controls, as well as compliance with legal and regulatory requirements;
- reviewing, overseeing, approving or disapproving any related-person transactions;
- reviewing with our management the scope and results of management's evaluation of our disclosure controls and procedures and management's assessment of our internal control over financial reporting, including the related certifications to be included in the periodic reports we will file with the SEC; and
- establishing procedures for the confidential anonymous submission of concerns regarding questionable accounting, internal controls or auditing matters, or other ethics or compliance issues.

Compensation committee

The members of our compensation committee are Messrs. Roberts and Stuelpnagel. Mr. Stuelpnagel is the chairperson of our compensation committee. Each of Messrs. Roberts and Stuelpnagel is a non-employee director, as defined by Rule 16b-3 promulgated under the Exchange Act and will meet the requirements for independence under the current Nasdaq listing standards and SEC rules and regulations. Our compensation committee is responsible for, among other things:

- reviewing and approving, or recommending that our board of directors approve, the compensation of our executive officers;
- acting as an administrator of our equity incentive plans;
- reviewing and approving, or making recommendations to our board of directors with respect to, incentive compensation and equity plans; and
- establishing and reviewing general policies relating to compensation and benefits of our employees.

Nominating and corporate governance committee

The members of our nominating and corporate governance committee are Messrs. Conley and Mammen and Ms. Suliman. Ms. Suliman is the chairperson of our nominating and corporate governance committee. Our nominating and corporate governance committee is responsible for, among other things:

- identifying and recommending candidates for membership on our board of directors, including the consideration of nominees submitted by stockholders, and to each of the board's committees;

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- reviewing and recommending our corporate governance guidelines and policies;
- reviewing proposed waivers of the code of business conduct and ethics for directors and executive officers;
- overseeing and setting compensation for our directors, including approval of performance-based compensation by reference to corporate goals and objectives resolved by the board of directors from time to time;
- overseeing the process of evaluating the performance of our board of directors; and
- assisting our board of directors on corporate governance matters.

Code of business conduct and ethics

Our board of directors has adopted a code of business conduct and ethics that applies to all of our employees, officers and directors, including our Chief Executive Officer, President, Chief Financial Officer and other executive and senior financial officers. Upon completion of this offering, the full text of our code of business conduct and ethics will be posted on the investor relations section of our website. We intend to disclose future amendments to our code of business conduct and ethics, or any waivers of such code, on our website or in public filings.

Compensation committee interlocks and insider participation

None of the members of our compensation committee is or has been an officer or employee of our company. None of our executive officers currently serves, or in the past year has served, as a member of the board of directors or compensation committee (or other board committee performing equivalent functions) of any entity that has one or more of its executive officers serving on our board of directors or compensation committee. See the section titled "*Certain relationships and related party transactions*" for information about related party transactions involving members of our compensation committee or their affiliates.

Compensation of directors

For information on director compensation, see the section titled "*Executive compensation—Director compensation*".

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Executive compensation

The following table sets forth information concerning the compensation paid to our named executive officers ("NEO"), during our fiscal year ended December 31, 2018 ("fiscal year 2018"). Our NEOs for the summary compensation table include our Chief Executive Officer ("CEO") and our next two most highly compensated executive officers.

Summary compensation table

Name and principal position	Year	Salary ($)(1)	Bonus ($)(2)	Stock option awards ($)(3)	Non-equity incentive plan compensation ($)(4)	All other compensation ($)	Total ($)
Serge Saxonov *Chief Executive Officer*	2018	365,833	—	601,010	117,432	—	1,084,275
Justin J. McAnear *Chief Financial Officer*	2018	71,737	—	1,455,118	—	—	1,526,855
Eric S. Whitaker *General Counsel*	2018	316,340	21,748	480,845	55,850	—	874,783

(1) The amounts shown represent the base salaries earned by our NEOs in fiscal year 2018. The amount for Mr. McAnear reflects the prorated portion of his annual base salary of $310,000 earned after commencing employment with us on October 8, 2018. The amount for each of Dr. Saxonov and Mr. Whitaker reflects the increase in their annual base salary to $375,000 effective March 1, 2018 and $319,608 effective March 1, 2018, respectively.

(2) The amount shown for Mr. Whitaker represents the portion of his annual bonus earned based on his individual performance in fiscal year 2018. 25% of Mr. Whitaker's bonus payout was tied to individual performance. Dr. Saxonov's bonus payout did not depend on his individual performance and was tied solely to corporate performance as described in footnote 4 below. For a discussion of the determination of the bonus amounts, see the section titled "*—Other elements of compensation—Fiscal year 2018 annual bonus*".

(3) The amounts shown represent the grant date fair values of stock options to purchase shares of our Historical Class B common stock granted in fiscal year 2018 as computed in accordance with Financial Accounting Standards Board ("FASB") Accounting Standard Codification ("ASC") Topic 718. For a discussion of valuation assumptions used to determine the grant date fair values of equity awards made to NEOs in fiscal year 2018, see the section titled "*Management's discussion and analysis of financial condition and results of operations—Critical accounting policies and estimates—Stock-based compensation*". For a discussion of the terms and conditions of the stock option grants, see the section titled "*—Outstanding equity awards at 2018 fiscal year end*". As a result of the reclassification of our Historical Class B common stock into shares of Class A common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*", to the extent such stock options remain unexercised at the time of the reclassification, such stock options will become stock options to purchase shares of our Class A common stock.

(4) The amounts shown for each of Dr. Saxonov and Mr. Whitaker represent the portion of their annual bonus earned based on our achievement of certain corporate performance goals established for fiscal year 2018. Dr. Saxonov's bonus payout was tied entirely to corporate performance and 75% of Mr. Whitaker's bonus payout was tied to corporate performance. Mr. McAnear was not eligible to receive a bonus for fiscal year 2018 because he commenced employment with us after the bonus eligibility cutoff date. For a discussion of the determination of these amounts, see the section titled "*—Other elements of compensation— Fiscal year 2018 annual bonus*".

Employment arrangements

This section contains a description of the material terms of the employment arrangements with our NEOs. Our NEOs, other than Dr. Saxonov, signed an offer letter with us, which provides for at-will employment and sets forth other terms of employment, including the initial base salary, target incentive opportunity, the terms of the initial equity grant and, in the case of Mr. McAnear, severance protections upon a qualifying termination. In addition, each of our NEOs executed a form of our standard at-will employment, confidential information, invention assignment and arbitration agreement, which includes a non-solicit of employees covenant during employment and for one year following termination.

Dr. Saxonov

Dr. Saxonov co-founded our company in 2012 and has not been party to an offer letter with us since our inception. In fiscal year 2018, Dr. Saxonov was entitled to an annual base salary of $320,000 (increased to

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$375,000 effective March 1, 2018 and to $400,000 effective April 1, 2019) and was eligible to earn an annual target bonus equal to 30% of his eligible base salary.

Mr. McAnear

Mr. McAnear signed an offer letter with us on August 17, 2018, under which he was entitled to an annual base salary of $310,000 (increased to $330,000 effective April 1, 2019), and at the time of execution, was eligible to earn an annual target bonus equal to 21% of his eligible base salary. However, because Mr. McAnear commenced employment with us after the bonus eligibility cutoff date of August 31, 2018, he was not eligible to receive a bonus for fiscal year 2018. Mr. McAnear's offer letter provides that he is eligible to participate in employee benefit plans that are generally available to other senior executives of our company located in the United States and is entitled to a lump sum severance payment of $500,000 if he is terminated by us without cause (as defined below) prior to October 8, 2019, subject to his execution and non-revocation of a release of claims against us. Pursuant to Mr. McAnear's offer letter, "cause" means our good faith determination that Mr. McAnear has (i) committed either a felony or other crime involving moral turpitude or any other act or omission involving theft, dishonesty, disloyalty or fraud; (ii) substantially and repeatedly failed to follow our policies, procedures and guidelines or substantially and repeatedly failed to perform his duties as reasonably directed by us; (iii) committed a breach of fiduciary duty, gross negligence or willful misconduct with respect to us; or (iv) committed any material breach of his offer letter. If Mr. McAnear's employment is terminated other than for cause, but at a time when we had cause to terminate him (or would have cause if we knew all of the relevant facts), his termination is to be treated as a termination for cause. In connection with his employment, we granted Mr. McAnear stock options to purchase 600,000 shares of our Historical Class B common stock. For a description of the material terms of this stock option grant, see footnote 10 to the outstanding equity awards at 2018 fiscal year end table.

Mr. Whitaker

Mr. Whitaker signed an offer with us on June 12, 2017, under which he was entitled to an annual base salary of $300,000 (increased to $319,608 effective March 1, 2018 and to $340,000 effective April 1, 2019) and was eligible to earn a discretionary annual target bonus equal to 16% (increased to 22% effective March 1, 2018) of his eligible base salary. In addition, Mr. Whitaker is eligible to participate in employee benefit plans that are generally available to other senior executives of our company located in the United States. In connection with his employment, we granted Mr. Whitaker stock options to purchase 525,000 shares of our Historical Class B common stock. For a description of the material terms of this stock option grant, see footnote 11 to the outstanding equity awards at 2018 fiscal year end table.

Other elements of compensation

Fiscal year 2018 annual bonus

We provide our executives an opportunity to earn annual cash bonuses to motivate and reward achievements of certain corporate and individual performance goals for each fiscal year. Because Mr. McAnear commenced employment with us after the bonus eligibility cutoff date for fiscal year 2018, he did not receive a bonus. The target bonus, expressed as a percentage of eligible base salary, for Dr. Saxonov and Mr. Whitaker was 30% and 22%, respectively, for fiscal year 2018. The payout of Dr. Saxonov's bonus was tied entirely to corporate performance and not dependent on individual performance, and the payout of Mr. Whitaker's bonus was tied 75% to corporate performance and 25% to individual performance.

Based on our achievement of net income and revenue targets established by our board of directors for fiscal year 2018, our compensation committee determined that Dr. Saxonov's and Mr. Whitaker's bonus amount relating to corporate performance would be paid out at 107%. Based on the assessment of Mr. Whitaker's

performance during fiscal year 2018, our compensation committee (with input from Dr. Saxonov) determined that the bonus amount relating to his individual performance would be paid out at 125%.

Health benefits

We provide customary employee benefits to eligible employees, including to our NEOs, including medical, dental and vision benefits, short-term and long-term disability insurance, basic and supplemental life insurance and basic and supplemental accidental death and dismemberment insurance.

Retirement benefits

We maintain a defined contribution plan (the "401(k) Plan") for all full-time United States employees, including our NEOs. The 401(k) Plan is intended to qualify as a tax-qualified plan under Section 401(a) of the Code. Each participant may contribute between 1% to 100% of such participant's eligible compensation to the 401(k) Plan subject to annual limitations. For fiscal year 2018, we did not make matching contributions to the 401(k) Plan on behalf of our employees.

Nonqualified deferred compensation

We do not maintain nonqualified defined contribution plans or other nonqualified deferred compensation plans.

Perquisites

We generally do not provide perquisites or personal benefits to our NEOs.

Outstanding equity awards at fiscal year end

The following table sets forth the number of securities underlying the equity awards held by each of our NEOs as of December 31, 2018.

Outstanding equity awards at 2018 fiscal year end

		Stock option awards[1]				
Name	**Grant date**	**Numbers of securities underlying unexercised stock options exercisable (#)(2)**	**Numbers of securities underlying unexercised stock options unexercisable (#)(3)**	**Equity incentive plan awards: number of securities underlying unexercised unearned stock options (#)(4)**	**Stock option exercise price ($)**	**Stock option expiration date**
Serge Saxonov	10/27/2015(5)	—	83,334	—	0.88	10/27/2025
	11/18/2016(6)	—	83,334	—	1.07	11/18/2026
	10/18/2017(7)	—	206,250	—	1.20	10/18/2027
	10/18/2017(8)	—	150,000	150,000	1.20	10/18/2027
	11/2/2018(9)	—	234,375	—	5.04	11/2/2028
Justin J. McAnear	11/2/2018(10)	600,000	—	—	5.04	11/2/2028
Eric S. Whitaker	7/28/2017(11)	441,000	—	—	1.20	7/28/2027
	11/2/2018(12)	12,500	187,500	—	5.04	11/2/2028

(1) As a result of the reclassification of our Historical Class B common stock into shares of Class A common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*", (a) any

outstanding restricted stock awards at the time of the reclassification will become restricted stock awards for shares of Class A common stock and (b) to the extent any stock options remain unexercised at the time of the reclassification, such stock options will become stock options to purchase shares of our Class A common stock.

(2) The amounts shown represent stock options to purchase shares of our Historical Class B common stock that are (i) early-exercisable (meaning that the stock options may be exercised before they vest in exchange for a restricted stock award for shares of our Historical Class B common stock) and have vested or have not yet vested and (i) not early-exercisable and have vested.

(3) The amounts shown represent stock options to purchase shares of our Historical Class B common stock that are not early-exercisable and have not yet vested, including those stock options discussed in footnote 4 below that have satisfied the performance-based portion of the vesting condition.

(4) The amount shown represents stock options to purchase shares of our Historical Class B common stock that remain subject to both time- and performance-based vesting conditions and have not yet vested.

(5) 12/48th of the stock options vested on the 12-month anniversary of August 1, 2015, and 1/48th of the stock options was scheduled to vest in equal monthly installments on the same day of each month thereafter over the following three years, subject to Dr. Saxonov's continued service through each applicable vesting date.

(6) 12/48th of the stock options vested on the 12-month anniversary of August 1, 2016, and 1/48th of the stock options was scheduled to vest in equal monthly installments on the same day of each month thereafter over the following three years, subject to Dr. Saxonov's continued service through each applicable vesting date.

(7) 1/48th of the stock options vested on the one month anniversary of September 1, 2017, and 1/48th of the stock options was scheduled to vest in equal monthly installments on the same day of each month thereafter, subject to Dr. Saxonov's continued service through each applicable vesting date.

(8) (i) 1/36th of 150,000 stock options was scheduled to vest in equal monthly installments beginning on January 1, 2019 over the following three years because our board of directors determined that our total revenue target of $140 million was achieved for fiscal year 2018, and (ii) 1/36th of an additional 150,000 stock options are eligible to vest in equal monthly installments beginning on January 1, 2020 if our board of directors determines that that our total revenue target of $230 million is achieved for fiscal year 2019, in each case of clauses (i) and (ii), subject to Dr. Saxonov's continued service through each applicable vesting date.

(9) 1/48th of the stock options vested on the one-month anniversary of September 1, 2018, and 1/48th of the stock options was scheduled to vest in equal monthly installments on the same day of each month thereafter, subject to Dr. Saxonov's continued service through each applicable vesting date.

(10) 12/48th of the early-exercisable stock options are eligible to vest on the 12-month anniversary of October 8, 2018, and 1/48th of the early-exercisable stock options are scheduled to vest in equal monthly installments on the same day of each month thereafter over the following three years, subject to Mr. McAnear's continued service through each applicable vesting date.

(11) 12/48th of the early-exercisable stock options vested on the 12-month anniversary of July 18, 2017, and 1/48th of the early-exercisable stock options was scheduled to vest in equal monthly installments on the 18th day of each month thereafter over the following three years, subject to Mr. Whitaker's continued service through each applicable vesting date. Out of the unexercised stock options exercisable, 339,063 stock options remained unvested as of December 31, 2018. Mr. Whitaker early-exercised 84,000 of his stock options in fiscal year 2018 and received a restricted stock award subject to our right of repurchase as to the unvested portion in the event Mr. Whitaker's service with us terminates for any reason. As of December 31, 2018, all of the shares subject to his restricted stock award were vested.

(12) 1/48th of the stock options vested on the one-month anniversary of September 1, 2018, and 1/48th of the stock options was scheduled to vest in equal monthly installments on the same day of each month thereafter, subject to Mr. Whitaker's continued service through each applicable vesting date.

Fiscal 2019 equity awards to Named Executive Officers

In May 2019, our board of directors approved option grants to employees and certain service providers, including Messrs. Saxonov, McAnear and Whitaker. The options granted to our NEOs in May 2019 included a 145,786 share option grant for Dr. Saxonov, a 20,000 share option grant for Mr. McAnear and an 85,000 share grant for Mr. Whitaker. 1/48th of the each of the options granted to our NEOs in May 2019 vested on the one month anniversary of April 1, 2019, and 1/48th of the stock options vested, and shall vest, in equal monthly installments on the same day of each month thereafter, subject to each NEO's continued service through each applicable vesting date. In addition, our NEOs are eligible to receive accelerated vesting of their unvested stock options granted in May 2019, such that 50% of the then-unvested stock options subject to an award will vest immediately prior to a change of control (as defined in the 2012 Stock Plan), and 100% of the then unvested stock options subject to such award will vest if the NEO's service is terminated without cause (as defined in the 2012 Stock Plan) in connection with or following a change of control.

Equity incentive plans

Amended and Restated 2012 Stock Plan

Our board of directors adopted, and our stockholders approved, the 10x Genomics, Inc. 2012 Stock Plan on October 2, 2012, which has been periodically amended and/or restated from time to time (such Amended and

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Restated 2012 Stock Plan, the "2012 Stock Plan"). When the Omnibus Incentive Plan (as defined below) becomes effective upon the completion of this offering, no further awards may be granted under the 2012 Stock Plan.

Purpose. The purpose of the 2012 Stock Plan is to attract and retain the best available personnel for positions of substantial responsibility, to provide additional incentive to our employees and service providers and to promote the success of our business.

Administration. Our board of directors, a committee appointed by our board of directors, or any combination thereof, as determined by our board of directors, acts as the administrator of the 2012 Stock Plan. Subject to the terms of the 2012 Stock Plan, the administrator determines the recipients, the number and type of stock awards to be granted and the terms and conditions of the stock awards, including the exercise price, period of exercisability and vesting schedule applicable to a stock award. The administrator has sole discretion to interpret and to make all decisions and determinations related to the 2012 Stock Plan and any stock award granted thereunder.

Awards subject to the 2012 Stock Plan. The 2012 Stock Plan provides for the grant of stock options (both incentive stock options and nonstatutory stock options) and restricted stock awards. Incentive stock options may be granted only to our employees, exclusive of employees of our affiliates. Nonstatutory stock options and restricted stock awards may be granted to our employees, non-employee directors and other service providers, including those of our affiliates.

Authorized shares. We previously reserved 24,782,088 shares of our Historical Class B common stock for issuance under the 2012 Stock Plan. Upon the effectiveness of the Omnibus Incentive Plan, no additional stock awards may be granted under the 2012 Stock Plan. Any stock awards granted under the 2012 Stock Plan will remain subject to the terms of the 2012 Stock Plan and applicable award agreement, until such outstanding awards that are stock options are exercised, terminate or expire by their terms, and until any restricted stock awards become vested, terminate or are forfeited.

Adjustments upon certain events. In the event of certain changes in our corporate structure, the 2012 Stock Plan provides that the administrator will make such adjustments to outstanding stock awards as required under the 2012 Stock Plan or in such manner as the administrator may deem appropriate. In the event of a change of control (as defined in the 2012 Stock Plan), the 2012 Stock Plan provides that the administrator will determine the treatment of each outstanding award, which determination will be made without the consent of any award holder, including: the continuation, assumption or substitution of such outstanding awards by the surviving corporation or its parent entity; the cancellation of such outstanding awards for consideration or no consideration; or the acceleration of vesting of such outstanding awards, as applicable. Such treatment determined by the administrator may be provided for in an award agreement.

Transferability of awards. Stock awards are generally not transferable other than by will or the laws of descent and distribution, except as otherwise provided under the 2012 Stock Plan.

Reclassification of common stock. As a result of the reclassification of our Historical Class B common stock into shares of Class A common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*", all shares of our Historical Class B common stock reserved for issuance under the 2012 Stock Plan will become reserved shares of Class A common stock and all outstanding stock options to purchase shares of our Historical Class B common stock will become stock options to purchase shares of our Class A common stock.

Amendment and termination. Our board of directors has authority to amend or terminate the 2012 Stock Plan at any time, although certain amendments require the approval of our stockholders, and amendments or terminations that would materially and adversely affect the rights of any award holder require such award holder's consent.

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2019 Omnibus Incentive Plan

Our board of directors has adopted, and our stockholders have approved, our 10x Genomics, Inc. 2019 Omnibus Incentive Plan (the "Omnibus Incentive Plan") which will be effective upon the completion of the offering. The Omnibus Incentive Plan is intended to replace the 2012 Stock Plan, but any awards outstanding under the 2012 Stock Plan will continue to be governed by their existing terms. The following summary is qualified in its entirety by reference to the Omnibus Incentive Plan that has been adopted by our board of directors.

Purpose. The purpose of the Omnibus Incentive Plan is to provide a means through which to attract and retain key personnel and to provide a means whereby our directors, officers, employees, consultants and advisors (and those of our subsidiaries or affiliates) can acquire and maintain an equity interest in us, or be paid incentive compensation, including incentive compensation measured by reference to the value of our shares of our Class A common stock, thereby strengthening their commitment to our welfare and aligning their interests with those of our stockholders.

Administration. The Omnibus Incentive Plan will be administered by the compensation committee of our board of directors, or such other committee of our board of directors to which it has properly delegated power, or if no such committee or subcommittee exists, our board of directors (such administering body referred to herein, for purposes of this description of the Omnibus Incentive Plan, as the committee). Except to the extent prohibited by applicable law or the applicable rules and regulations of any securities exchange or interdealer quotation system on which our securities are listed or traded, the committee may allocate all or any portion of its responsibilities and powers to any one or more of its members and may delegate all or any part of its responsibilities and powers to any person or persons selected by it in accordance with the terms of the Omnibus Incentive Plan.

The committee is authorized to: (i) designate participants; (ii) determine the type or types of awards to be granted to a participant; (iii) determine the number of shares of our Class A common stock to be covered by, or with respect to which payments, rights or other matters are to be calculated in connection with, awards; (iv) determine the terms and conditions of any award; (v) determine whether, to what extent and under what circumstances awards may be settled in, or exercised for, cash, shares of our Class A common stock, other securities, other awards or other property, or canceled, forfeited or suspended and the method or methods by which awards may be settled, exercised, canceled, forfeited or suspended; (vi) determine whether, to what extent, and under what circumstances the delivery of cash, shares of our Class A common stock, other securities, other awards or other property and other amounts payable with respect to an award will be deferred either automatically or at the election of the participant or of the committee; (vii) interpret, administer, reconcile any inconsistency in, correct any defect in, and/or supply any omission in the Omnibus Incentive Plan and any instrument or agreement relating to, or award granted under, the Omnibus Incentive Plan; (viii) establish, amend, suspend or waive any rules and regulations and appoint such agents as the committee may deem appropriate for the proper administration of the Omnibus Incentive Plan; (ix) adopt sub-plans and (x) make any other determination and take any other action that the committee deems necessary or desirable for the administration of the Omnibus Incentive Plan. Unless otherwise expressly provided in the Omnibus Incentive Plan, all designations, determinations, interpretations and other decisions under or with respect to the Omnibus Incentive Plan or any award or any documents evidencing awards granted pursuant to the Omnibus Incentive Plan are within the sole discretion of the committee, may be made at any time and are final, conclusive and binding upon all persons or entities, including, without limitation, us, any participant, any holder or beneficiary of any award and any of our stockholders. The committee may make grants of awards to eligible persons pursuant to the terms and conditions set forth in the applicable award agreement, including subjecting such awards to performance criteria listed in the Omnibus Incentive Plan.

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Term. The Omnibus Incentive Plan will have a term of ten years unless earlier terminated (i) on the date on which all the shares of our Class A common stock available for issuance under the Omnibus Incentive Plan have been issued or (ii) by the committee in accordance with the terms of the Omnibus Incentive Plan.

Awards subject to the Omnibus Incentive Plan. The Omnibus Incentive Plan provides that the total number of shares of our Class A common stock that may be issued under the Omnibus Incentive Plan is 11,000,000, which includes an aggregate of 1,323,858 shares of our Historical Class B common stock reserved for future grants under the 2012 Stock Plan, as of June 30, 2019, which will be added to the total number of shares of reserved under the Omnibus Incentive Plan upon the effectiveness of the Omnibus Incentive Plan (such share limit as increased from time to time, the "Absolute Share Limit"). However, the Absolute Share Limit shall be increased on the first day of each calendar year commencing on January 1, 2021 and ending on January 1, 2029 in an amount equal to the lesser of (i) 5% of the total number of shares of common stock outstanding on the last day of the immediately preceding fiscal year and (ii) such number of shares of Class A common stock as determined by our board of directors. However, if on January 1 of a calendar year, our board of directors has not either confirmed the 5% increase described in clause (i) or approved a lesser number of shares for such calendar year, then our board of directors will be deemed to have waived the automatic increase, and no such increase will occur for such calendar year. Of the Absolute Share Limit, no more than 11,000,000 shares of Class A common stock may be issued in the aggregate pursuant to the exercise of incentive stock options granted under the Omnibus Incentive Plan. During a single fiscal year, each non-employee director shall be granted a number of shares of Class A common stock subject to awards under the Omnibus Incentive Plan, taken together with any cash fees paid to such non-employee director during such fiscal year, equal to $1,000,000 or such lower amount as determined by our board of directors. Except for substitute awards (as described below) (or the equivalent thereof under the 2012 Stock Plan), to the extent that an award (or an award under the 2012 Stock Plan) expires or is canceled, forfeited, terminated, settled in cash or otherwise is settled without issuance to the participant of the full number of shares our Class A common stock to which the award (or the award under the 2012 Stock Plan) related, the unissued shares will again be available for grant under the Omnibus Incentive Plan. Shares of our Class A common stock withheld in payment of the exercise price, or taxes relating to an award, and shares equal to the number of shares surrendered in payment of any exercise price, or taxes relating to an award, shall be deemed to constitute shares not issued. However, such shares shall not become available for issuance if either: (i) the applicable shares are withheld or surrendered following the termination of the Omnibus Incentive Plan or (ii) at the time the applicable shares are withheld or surrendered, it would constitute a material revision of the Omnibus Incentive Plan subject to stockholder approval under any then-applicable rules of the national securities exchange on which our Class A common stock is listed. No award may be granted under the Omnibus Incentive Plan after the tenth anniversary of the Effective Date (as defined in the Omnibus Incentive Plan), but awards granted before then may extend beyond that date. Awards may, in the sole discretion of the committee, be granted in assumption of, or in substitution for, outstanding awards previously granted by an entity directly or indirectly acquired by us or with which we combine, or substitute awards, and such substitute awards will not be counted against the Absolute Share Limit, except that substitute awards intended to qualify as "incentive stock options" will count against the limit on incentive stock options described above.

Stock options. Under the Omnibus Incentive Plan, the committee may grant nonqualified stock options and incentive stock options with terms and conditions determined by the committee that are not inconsistent with the Omnibus Incentive Plan, except that all stock options granted under the Omnibus Incentive Plan are required to have a per share exercise price that is not less than 100% of the fair market value of our shares of our Class A common stock underlying such stock options on the date such stock options are granted (other than in the case of stock options that are substitute awards), and all stock options that are intended to qualify as incentive stock options must be granted pursuant to an award agreement expressly stating that the stock options are intended to qualify as incentive stock options, and will be subject to the terms and conditions that

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comply with the rules as may be prescribed by Section 422 of the Code. The maximum term for stock options granted under the Omnibus Incentive Plan will be ten years from the initial date of grant, or with respect to any stock options intended to qualify as incentive stock options, such shorter period as prescribed by Section 422 of the Code. However, if a nonqualified stock option would expire at a time when trading of shares of our Class A common stock is prohibited by our insider trading policy (or "blackout period" imposed by us), the term will automatically be extended to the 30th day following the end of such period. The purchase price for the shares of our Class A common stock as to which a stock option is exercised may be paid to us, to the extent permitted by law (i) in cash, check, cash equivalent and/or shares of our Class A common stock valued at the fair market value at the time the stock option is exercised equal to the aggregate exercise price for the shares of our Class A common stock being purchased and satisfying any requirements as may be imposed by the committee, except that such shares of our Class A common stock are not subject to any pledge or other security interest and have been held by the participant for at least six months (or such other period as established from time to time by the committee in order to avoid adverse accounting treatment applying generally accepted accounting principles in the United States ("GAAP")) or (ii) by such other method as the committee may permit in its sole discretion, including, without limitation: (a) in other property having a fair market value on the date of exercise equal to the exercise price, (b) if there is a public market for the shares of our Class A common stock at such time, by means of a broker-assisted "cashless exercise" pursuant to which we are delivered (including telephonically to the extent permitted by the committee) a copy of irrevocable instructions to a stockbroker to sell the shares of our Class A common stock otherwise issuable upon the exercise of the stock option and to deliver promptly to us an amount equal to the aggregate exercise price for the shares of our Class A common stock being purchased or (c) a "net exercise" procedure effected by withholding the minimum number of shares of our Class A common stock otherwise issuable in respect of a stock option that is needed to pay the exercise price. Any fractional shares of our Class A common stock will be settled in cash.

Stock appreciation rights. The committee may grant stock appreciation rights ("SARs") under the Omnibus Incentive Plan, with terms and conditions determined by the committee that are not inconsistent with the Omnibus Incentive Plan. The committee may grant SARs in tandem with a stock option, but the committee may also award SARs independent of any stock option. Generally, each SAR will entitle the participant upon exercise to an amount (in cash, shares of our Class A common stock or a combination of cash and shares, as determined by the committee) equal to the product of (i) the excess of (a) the fair market value on the exercise date of one share of our Class A common stock over (b) the strike price per share of our Class A common stock covered by the SAR, times (ii) the number of shares of our Class A common stock covered by the SAR, less any taxes required to be withheld. The strike price per share of our Class A common stock covered by a SAR will be determined by the committee at the time of grant but in no event may such amount be less than 100% of the fair market value of a share of our Class A common stock on the date the SAR is granted (other than in the case of SARs that are substitute awards).

Restricted stock and restricted stock units. The committee may grant restricted stock awards for shares of our Class A common stock or may grant restricted stock units ("RSUs") representing the right to receive, upon vesting and the expiration of any applicable restricted period, one share of our Class A common stock for each RSU, or, in the sole discretion of the committee, the cash value thereof (or any combination thereof). As to restricted stock awards, subject to the other provisions of the Omnibus Incentive Plan, the holder will generally have the rights and privileges of a stockholder as to such restricted stock, including, without limitation, the right to vote. Participants have no rights or privileges as a stockholder with respect to RSUs.

Other equity-based awards and other cash-based awards. The committee may grant other equity-based or cash-based awards under the Omnibus Incentive Plan, with terms and conditions determined by the committee that are not inconsistent with the Omnibus Incentive Plan.

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Effect of certain events on the Omnibus Incentive Plan and awards. In the event of certain changes to our capital structure or a change in control (as defined in the Omnibus Incentive Plan) (each, an "Adjustment Event"), the committee will, in respect of any such Adjustment Event, make such proportionate substitution or adjustment, if any, as it deems equitable, to any or all of (i) the Absolute Share Limit, or any other limit applicable under the Omnibus Incentive Plan with respect to the number of awards which may be granted thereunder; (ii) the number of shares of our Class A common stock or other of our securities (or number and kind of other securities or other property) which may be issued in respect of awards or with respect to which awards may be granted under the Omnibus Incentive Plan or any sub-plan; and (iii) the terms of any outstanding award, including, without limitation, (a) the number of shares of our Class A common stock or other of our securities (or number and kind of other securities or other property) subject to outstanding awards or to which outstanding awards relate; (b) the exercise price or strike price with respect to any award; or (c) any applicable performance measures, except in the case of any "equity restructuring" (within the meaning of the FASB ASC Topic 718 (or any successor pronouncement thereto)), the committee will make an equitable or proportionate adjustment to outstanding awards to reflect such equity restructuring.

In connection with a change in control, the committee may, in its sole discretion, provide for any one or more of the following: (i) substitution or assumption of awards, or to the extent not substituted or assumed, acceleration of the vesting of, exercisability of, or lapse of restrictions on, as applicable, any awards immediately prior to, and contingent upon, such change in control. However, with respect to any performance-vesting awards, any such acceleration of vesting, exercisability, or lapse of restriction, shall be based on actual performance through the date of such change in control; and (ii) subject to any limitations or reductions as may be necessary to comply with Section 409A of the Code, cancellation of any one or more outstanding awards and payment to the holders of such awards that are vested as of such cancellation (including, without limitation, any awards that would vest as a result of the occurrence of such event but for such cancellation or for which vesting is accelerated by the committee in connection with such event) the value of such awards, if any, as determined by the committee (which value, if applicable, may be based upon the price per share of our Class A common stock received or to be received by other holders of shares of our Class A common stock in such event), including, without limitation, in the case of stock options and SARs, a cash payment equal to the excess, if any, of the fair market value of the shares of our Class A common stock subject to the stock option or SAR over the aggregate exercise price or strike price thereof.

Nontransferability of awards. No award will be permitted to be assigned, alienated, pledged, attached, sold or otherwise transferred or encumbered by a participant (unless such transfer is specifically required pursuant to a domestic relations order by applicable law) other than by will or by the laws of descent and distribution and any such purported assignment, alienation, pledge, attachment, sale, transfer or encumbrance will be void and unenforceable against us or any of our subsidiaries. However, the committee may, in its sole discretion, permit awards (other than incentive stock options) to be transferred, including transfers to a participant's family members, any trust established solely for the benefit of a participant or such participant's family members, any partnership or limited liability company of which a participant, or such participant and such participant's family members, are the sole member(s), and a beneficiary to whom donations are eligible to be treated as "charitable contributions" for tax purposes.

Amendment and termination. Our board of directors may amend, alter, suspend, discontinue or terminate the Omnibus Incentive Plan or any portion thereof at any time, except that no such amendment, alteration, suspension, discontinuance or termination may be made without stockholder approval if (i) such approval is necessary to comply with any regulatory requirement applicable to the Omnibus Incentive Plan or for changes in GAAP to new accounting standards; (ii) it would materially increase the number of securities which may be issued under the Omnibus Incentive Plan (except for adjustments in connection with certain corporate events); or (iii) it would materially modify the requirements for participation in the Omnibus Incentive Plan. In addition,

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any such amendment, alteration, suspension, discontinuance or termination that would materially and adversely affect the rights of any participant or any holder or beneficiary of any award will not to that extent be effective without such individual's consent.

The committee may, to the extent consistent with the terms of any applicable award agreement, waive any conditions or rights under, amend any terms of, or alter, suspend, discontinue, cancel or terminate, any award granted or the associated award agreement, prospectively or retroactively (including after a termination of employment or services, as applicable), but, except as otherwise permitted in the Omnibus Incentive Plan, any such waiver, amendment, alteration, suspension, discontinuance, cancellation or termination that would materially and adversely affect the rights of any participant with respect to such award will not to that extent be effective without such individual's consent. In addition, without stockholder approval, except as otherwise permitted in the Omnibus Incentive Plan, (i) no amendment or modification may reduce the exercise price of any stock option or the strike price of any SAR; (ii) the committee may not cancel any outstanding stock option or SAR and replace it with a new stock option or SAR (with a lower exercise price or strike price, as the case may be) or other award or cash payment that is greater than the value of the cancelled stock option or SAR; and (iii) the committee may not take any other action which is considered a "repricing" for purposes of the stockholder approval rules of any securities exchange or inter-dealer quotation system on which our securities are listed or quoted.

Dividends and dividend equivalents. The committee in its sole discretion may provide as part of an award dividends or dividend equivalents, on such terms and conditions as may be determined by the committee in its sole discretion. Unless otherwise provided in the award agreement, any dividends payable in respect of restricted stock awards that remain subject to vesting conditions at the time of payment shall be retained by us and remain subject to the same vesting conditions as the restricted stock awards to which the dividend relates and delivered to the participant within 15 days following the date on which such restrictions on such restricted stock awards lapse and, if such restricted stock is forfeited, the participant shall have no right to such dividends. Dividend equivalent payments attributable to RSUs shall be distributed to the participant in cash or, in the sole discretion of the committee, in shares of our Class A common stock having a fair market value equal to the amount of dividends paid on shares of our Class A common stock, upon the settlement of the RSUs and, if such RSUs are forfeited, the participant shall have no right to such dividend equivalent payments (or interest thereon, if applicable).

Clawback/repayment. All awards are subject to reduction, cancellation, forfeiture or recoupment to the extent necessary to comply with (i) any clawback, forfeiture or other similar policy adopted by our board of directors or the committee and as in effect from time to time and (ii) applicable law. To the extent that a participant receives any amount in excess of the amount that the participant should otherwise have received under the terms of the award for any reason (including, without limitation, by reason of a financial restatement, mistake in calculations or other administrative error), the participant will be required to repay us any such excess amount.

Detrimental activity. If a participant has engaged in any detrimental activity, as defined in the Omnibus Incentive Plan, as determined by the committee, the committee may, in its sole discretion, provide for one or more of the following: (i) cancellation of any or all of such participant's outstanding awards or (ii) forfeiture and repayment to us on any gain realized on the vesting, exercise or settlement of any awards previously granted to such participant.

2019 Employee Stock Purchase Plan

Our board of directors has adopted, and our stockholders have approved, our 10x Genomics, Inc. 2019 Employee Stock Purchase Plan (the "ESPP") which will be effective upon the completion of this offering. The following

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summary is qualified in its entirety by reference to the ESPP that has been adopted by our board of directors.

Purpose. The ESPP is intended to give eligible employees an opportunity to purchase shares of our Class A common stock. We believe that allowing our employees to participate in the ESPP provides them with a further incentive towards ensuring our success and accomplishing our corporate goals. The ESPP is intended to qualify as an "employee stock purchase plan" under Section 423 of the Code. We may authorize offerings under the ESPP that are not intended to comply with Section 423 of the Code, which offerings will be made pursuant to any rules, procedures or sub-plans adopted by the committee for such purpose.

Authorized shares. The ESPP provides that the maximum number of shares of our Class A common stock made available for sale thereunder will be 2,000,000, which number will be automatically increased on the first day of each calendar year commencing on January 1, 2021 and ending on January 1, 2029 in an amount equal to the lesser of (i) 1% of the total number of shares of common stock outstanding on the last day of the immediately preceding fiscal year and (ii) such number of shares of our Class A common stock as determined by our board of directors. However, if on January 1 of a calendar year our board of directors has not either confirmed the 1% described in clause (i) or approved a lesser number of shares of our Class A common stock for such calendar year, our board of directors will be deemed to have waived the automatic increase and no such increase will occur for such calendar year. The maximum number of shares available under the ESPP (and any share limitations thereunder, as applicable) will automatically be adjusted upon certain changes to our capital structure.

Administration. The ESPP will be administered by the compensation committee, or such other committee as may be designated by our board of directors, or our board of directors (such administering body, the "Administrator"). The Administrator will have full authority to make, administer and interpret such terms, rules and regulations regarding administration of the ESPP as it may deem advisable, and such decisions are final and binding.

Term. The ESPP will have a term of ten years unless earlier terminated (i) on the date on which all the shares of Class A common stock available for issuance under the ESPP have been issued or (ii) by the Administrator in accordance with the terms of the ESPP.

Eligible employees. Subject to the Administrator's ability to exclude certain groups of employees on a uniform and nondiscriminatory basis, including section 16 officers, generally, all of our employees will be eligible to participate if they are employed by us or any participating subsidiary or affiliate for at least 90 days or any lesser number of hours per week and/or number of days established by the Administrator. In no event will an employee who is deemed to own 5% or more of the total combined voting power or value of all classes of our capital stock or the capital stock of any parent or subsidiary be eligible to participate in the ESPP, and no participant in the ESPP may purchase shares of our Class A common stock under any employee stock purchase plans of our company to the extent the option to purchase shares accrue at a rate that exceeds $25,000 of the fair market value of such shares of our Class A common stock, determined as of the first day of the offering period, for each calendar year in which such option is outstanding.

Offering periods and purchase periods. Offering periods under the ESPP will be 6 months long, except that the first offering period will run from the date of completion of this offering and end on May 14, 2020. Following the end of the first offering period, a new offering period will commence on each of May 15 and November 15 of each calendar year. The Administrator may choose to start a new offering period as it may determine from time to time as appropriate and offering periods may overlap or be consecutive. During each offering period, there will be one 6 month purchase period, which will have the same duration and coincide with the length of the offering period.

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Purchase price. Eligible employees who participate will receive an option to purchase shares of our Class A common stock at a purchase price equal to the lower of 85% of (i) the closing price per share of our Class A common stock on the date of purchase or (ii) the closing price per share of our Class A common stock on the first day of the applicable offering period (or, in the case of the first offering period, the price per share at which shares of our Class A common stock are first sold to the public in connection with this offering). Eligible employees participate by authorizing payroll deductions before the beginning of an offering period, which deduction may not exceed 15% of such employee's cash compensation.

Contributions and grants. Eligible employees participate by authorizing payroll deductions before the beginning of an offering period, which deduction may not exceed 15% of such employee's cash compensation. In addition, the maximum number of shares of our Class A common stock that may be purchased by all participants in any particular purchase period is limited to 2,000 shares (subject to adjustment as provided in the ESPP), and the maximum number of shares of our Class A common stock that may be purchased by any participant during any one year period is limited to 4,000 shares. The Administrator may modify this limit from time to time by resolution or otherwise.

Cancellation of election to purchase. A participant may cancel his or her participation entirely at any time by withdrawing all, but not less than all, of his or her contributions credited to his or her account and not yet used to exercise his or her option under the ESPP. Participation will end automatically upon termination of employment with us.

Effect of a change in control. In the event of a change in control (as defined under the ESPP), the Administrator may in its discretion provide, without limitation, that each outstanding option be assumed, or an equivalent option be substituted by the successor corporation or a parent or subsidiary of the successor corporation and, if not so assumed or substituted, the offering period for that option be shortened by setting a new exercise date on which the offering period will end; terminate outstanding options and refund accumulated contributions to participants; or continue outstanding options unchanged.

Rights as stockholder. A participant will have no rights as a stockholder with respect to the shares of our Class A common stock that the participant has an option to purchase in any offering until those shares have been issued to the participant.

Options not transferable and restrictions on sale. A participant's option under the ESPP will be exercisable only by the participant and may not be sold, transferred, pledged or assigned in any manner other than by will or the laws of descent and distribution. Unless otherwise determined by the Administrator, a participant may not sell, transfer or otherwise dispose of any shares of our Class A common stock purchased under the ESPP for 12 months following the applicable exercise date.

Amendment or termination. The Administrator, in its sole discretion, may amend, alter, suspend or terminate the ESPP, or any option subject thereto, at any time and for any reason as long as such amendment or termination of an option does not materially adversely affect the rights of a participant with respect to the option without the written consent of such participant.

Potential payments upon a change of control or termination of employment

Each of our NEOs is eligible to receive accelerated vesting of their unvested stock options granted under the 2012 Stock Plan, such that 50% of the then-unvested stock options subject to an award will vest and become exercisable immediately prior to a change of control (as defined in the 2012 Stock Plan), and 100% of the then-unvested stock options subject to an award will vest and become exercisable if the NEO's employment is terminated without cause (as defined in the 2012 Stock Plan) in connection with or following a change of control. For a description of the severance protection provided to Mr. McAnear under his offer letter, see the section titled "*—Employment arrangements—Mr. McAnear*".

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Director compensation

This following table sets forth information concerning the compensation paid to our non-employee directors during fiscal year 2018. Our employee directors receive no additional compensation for serving on our board of directors. The compensation paid to Dr. Saxonov for serving as our CEO is set forth in the Summary compensation table above.

Name(3)	Stock option awards ($)(1)(2)	Total ($)
Paul A. Conley	—	—
Mathai Mammen	—	—
Bryan E. Roberts	—	—
John R. Stuelpnagel	240,442	240,442

(1) As a result of the reclassification of our Historical Class B common stock into shares of Class A common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*", (i) any outstanding restricted stock awards at the time of the reclassification will become restricted stock awards for shares of Class A common stock and (ii) to the extent any stock options remain unexercised at the time of the reclassification, such stock options will become stock options to purchase shares of our Class A common stock.

(2) The amount shown represents the grant date fair value of stock options to purchase shares of our Historical Class B common stock granted to Dr. Stuelpnagel in fiscal year 2018, as computed in accordance with FASB ASC Topic 718. We did not grant stock options to any other non-employee director in fiscal year 2018. For a discussion of valuation assumptions used to determine the grant date fair value of the stock options granted to Dr. Stuelpnagel in fiscal year 2018, see the section titled "*Management's discussion and analysis of financial condition and results of operations—Critical accounting policies and estimates—Stock-based compensation*". As of December 31, 2018, the aggregate number of outstanding stock options to purchase shares of our Historical Class B common stock held by each of our non-employee directors was as follows: Dr. Conley, 0; Dr. Mammen, 200,000; Dr. Roberts, 0; and Dr. Stuelpnagel, 0. For Dr. Mammen, 1/48th of his early-exercisable stock options vested on the one-month anniversary of June 12, 2017, and 1/48th of such stock options was scheduled to vest in equal monthly installments on the same day of each month thereafter, subject to Dr. Mammen's continued service through each applicable vesting date. For Dr. Stuelpnagel, 1/48th of his early-exercisable stock options vested on the one-month anniversary of September 1, 2018, and 1/48th of such stock options was scheduled to in equal monthly installments on the same day of each month thereafter, subject to Dr. Stuelpnagel's continued service through each applicable vesting date. Dr. Stuelpnagel early-exercised all 100,000 stock options subject to his award in fiscal year 2018 and received a restricted stock award for shares of our Historical Class B common stock, subject to our right of repurchase as to the unvested portion in the event Dr. Stuelpnagel's service with us terminates for any reason. As of December 31, 2018, 218,750 shares subject to his restricted stock award remained unvested.

(3) Mr. Kosaraju and Dr. Suliman were appointed to our board of directors in April 2019 and August 2019, respectively.

Description of director compensation

Prior to this offering, we did not have a formal director compensation policy and did not pay our non-employee directors compensation for their services as a director, other than reimbursing them for reasonable out-of-pocket travel expenses incurred while attending meetings of our board of directors or occasionally granting an equity award to certain of our non-employee directors upon their initial appointment to our board of directors. In connection with this offering, each of Messrs. Conley and Roberts will receive a grant of nonqualified stock options to purchase 40,000 shares of Class A common stock with an exercise price per share equal to the initial public offering price. These option grants will vest in equal monthly installments for three years following the date of grant, subject to Messrs. Conley's or Roberts's continued service as a non-employee director through each such vesting date. Notwithstanding the foregoing, each such option grant will vest as to 50% upon the occurrence of a change in control (as defined in the Omnibus Incentive Plan) and as to 100% upon Messrs. Conley's or Roberts's respective termination without cause (as defined in the Omnibus Incentive Plan) in connection with or after such change in control. Following the completion of this offering, each of our non-employee directors will be entitled to annual compensation in accordance with the following non-employee director compensation policy:

- an annual cash retainer of $40,000, payable quarterly in arrears;

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- the non-employee director serving as chair of our board of directors and each non-employee director serving as a member or chair, as applicable, of the following committees of our board of directors will receive the following additional annual retainers, each of which is also payable quarterly in arrears:

  Chair of the Board: $40,000

  Audit Committee Chair: $20,000

  Audit Committee Member: $10,000

  Compensation Committee Chair: $15,000

  Compensation Committee Member: $7,500

  Nominating and Corporate Governance Chair: $10,000

  Nominating and Corporate Governance Member: $5,000;

- upon becoming a member of our board of directors, a one-time grant of options having a grant date fair value equal to $400,000 (with the number of options to be granted calculated using the Black-Scholes or similar established formula) and an exercise price per share equal to the fair market value (as defined in the Omnibus Incentive Plan) of a share of Class A common stock on the date of grant, which will vest as to one-third of such grant on the first anniversary of the date of grant and thereafter in equal monthly installments for the following two years, subject to the non-employee director continuing in service though each such vesting date; and

- an annual grant of options having a grant date fair market value equal to $200,000 (with the number of options to be granted calculated using the Black-Scholes or a similar established formula) and an exercise price per share equal to the fair value of a share of Class A common stock on the date of grant, to be granted on the date of our annual meeting of stockholders and which will vest monthly over the 12 month period following the date of grant, subject to the non-employee director continuing in service through each such vesting date.

In each case, the options granted will vest in full upon the occurrence of a change in control.

Our directors will not be paid any fees for attending meetings. However, our directors will be reimbursed for travel and lodging expenses associated with attendance at board or committee meetings.

Fiscal 2019 Equity Awards to Our Directors

Other than the grants to Messrs. Conley and Roberts described above which will be effective upon this offering, our board of directors has approved option grants for two of our non-employee directors to date in 2019. The options granted to our non-employee directors included a 130,000 share option grant in May 2019 for Mr. Kosaraju and a 100,000 share option grant in August 2019 for Dr. Suliman. 1/48th of the each of the options granted to each of Mr. Kosaraju and Dr. Suliman vested on the one month anniversary of each director's vesting commencement dates of May 10, 2019 and August 7, 2019, respectively, and 1/48th of the stock options vested, and shall vest, in equal monthly installments on the same day of each month thereafter, subject to each director's continued service through each applicable vesting date. The options granted to Mr. Kosaraju and Dr. Suliman are early exercisable and are eligible to receive accelerated vesting of their unvested stock options, such that 50% of the then-unvested stock options subject to an award will vest immediately prior to a change of control (as defined in the 2012 Stock Plan), and 100% of the then unvested stock options subject to such award will vest if the director's service is terminated without cause (as defined in the 2012 Stock Plan) in connection with or following a change of control.

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Certain relationships and related party transactions

In addition to the compensation arrangements, including employment, termination of employment and change in control arrangements discussed in the sections titled “Management” and “Executive compensation” and the registration rights described in the section titled “Description of capital stock—Registration rights”, the following is a description of each transaction since January 1, 2016 and each currently proposed transaction in which:

- we have been or are to be a participant;
- the amount involved exceeded or exceeds $120,000; and
- any of our directors, executive officers or holders of more than 5% of any class of our outstanding capital stock, or any immediate family member of, or person sharing the household with, any of these individuals or entities had or will have a direct or indirect material interest.

Other than as described below, there have not been, nor are there any currently proposed, transactions or series of similar transactions meeting this criteria to which we have been or will be a party other than compensation arrangements, which are described where required under “*Executive compensation*”. We believe the terms of the transactions described below were comparable to terms we could have obtained in arm’s-length dealings with unrelated third parties.

Convertible preferred stock financings

The following table summarizes purchases of our Convertible Preferred Stock by our directors and holders of more than 5% percent of any class of our capital stock and their affiliated entities. None of our executive officers purchased shares of Convertible Preferred Stock since January 1, 2016.

Name	Shares of Series C convertible preferred stock(1)	Shares of Series D convertible preferred stock(2)	Shares of Series D-1 convertible preferred stock(3)	Aggregate purchase price
				(in thousands)
Paladin Capital Group and affiliated entities(4)	1,004,868	653,082	—	$ 10,750
John R. Stuelpnagel Trust(5)	223,304	49,634	—	$ 1,475
Fidelity and affiliated entities(6)	7,034,076	764,890	785,545	$ 48,820
Foresite Capital Management and affiliated entities(7)	1,770,803	—	—	$ 7,930
Venrock and affiliated entities(8)	1,786,431	—	—	$ 8,000

(1) Our Series C Convertible Preferred Stock was issued between February 2016 and March 2017.

(2) Our Series D Convertible Preferred Stock was issued in April 2018.

(3) Our Series D-1 Convertible Preferred Stock was issued in October 2018.

(4) Paladin Capital Group is one of our principal stockholders. See the section titled “*Principal stockholders*” for more information. Dr. Conley, a member of our board of directors, is affiliated with Paladin Capital Group.

(5) Dr. Stuelpnagel, the chairman of our board of directors, is trustee of the John R. Stuelpnagel Trust.

(6) Fidelity is one of our principal stockholders. See the section titled “*Principal stockholders*” for more information.

(7) Foresite Capital Management is one of our principal stockholders. See the section titled “*Principal stockholders*” for more information.

(8) Venrock is one of our principal stockholders. See the section titled “*Principal stockholders*” for more information. Dr. Roberts, a member of our board of directors, is affiliated with Venrock.

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Amended and Restated Investors' Rights Agreement

We are party to our Amended and Restated Investors' Rights Agreement (the "IRA"), dated as of October 18, 2018, which provides, among other things, that certain holders of our capital stock, including Dr. Saxonov, our Chief Executive Officer, Dr. Hindson, our Chief Scientific Officer, the John R. Stuelpnagel Trust and entities affiliated with each of Fidelity, Foresite Capital Management, Venrock and Paladin Capital Group and certain of their transferees, be covered by a registration statement that we are otherwise filing and receive certain registration rights. Dr. Conley, a member of our board of directors, is affiliated with Paladin Capital Group. Dr. Roberts, a member of our board of directors, is affiliated with Venrock. Dr. Stuelpnagel, the chairman of our board of directors, is trustee of the John R. Stuelpnagel Trust. The registration and associated rights set forth in the IRA will expire no later than two years following the completion of this offering. See the section titled "*Description of capital stock—Registration rights*" for additional information regarding these registration rights. All other rights set forth in the IRA will terminate immediately prior to the completion of this offering.

Amended and Restated Right of First Refusal and Co-Sale Agreement

Pursuant to certain of our bylaws, equity compensation plans and certain agreements with our stockholders, including our Amended and Restated Right of First Refusal and Co-Sale Agreement, dated October 18, 2018, we or our assignees have a right to purchase shares of our capital stock which certain stockholders propose to sell to other parties. Should we chose not to exercise this right, certain holders of our capital stock, including Dr. Saxonov, our Chief Executive Officer, Dr. Hindson, our Chief Scientific Officer, the John R. Stuelpnagel Trust and entities affiliated with each of Fidelity, Foresite Capital Management, Venrock and Paladin Capital Group, have a right to purchase such shares of our capital stock. Immediately prior to the completion of this offering, our Amended and Restated Right of First Refusal and Co-Sale Agreement will terminate and none of our stockholders will have any right of first refusal or co-sale rights.

Amended and Restated Voting Agreement

We are party to our Amended and Restated Voting Agreement (the "Voting Agreement"), dated as of October 18, 2018, under which certain holders of our capital stock, including Dr. Saxonov, our Chief Executive Officer, Dr. Hindson, our Chief Scientific Officer, the John R. Stuelpnagel Trust and entities affiliated with each of Fidelity, Foresite Capital Management, Venrock and Paladin Capital Group, have agreed to vote their shares of our capital stock with respect to the election, appointment and removal of directors. In accordance with our Seventh Amended and Restated Certificate of Incorporation (the "Pre-IPO Charter") and the terms of the Voting Agreement: Dr. Conley and Dr. Roberts were elected as the Preferred Directors (as defined in the Pre-IPO Charter), which are elected by the holders of at least a majority of the outstanding shares of our Series A-1 and Series A-2 Convertible Preferred Stock, respectively, that are party to the Voting Agreement); Dr. Saxonov and Dr. Hindson were elected as the Common Directors (as defined in the Pre-IPO Charter), with Dr. Saxonov being elected because he is our current Chief Executive Officer and Dr. Hindson being elected by the holders of at least a majority of the voting power of the Historical Common Stock (excluding the voting power of shares of Historical Common Stock issuable upon conversion of Convertible Preferred Stock) held by holders party to the Voting Agreement; and Dr. Stuelpnagel and Dr. Mammen were elected as At-Large Directors (as defined in the Pre-IPO Charter), one of which is elected by a majority of the voting power of the Historical Common Stock (excluding the voting power of shares of Historical Common Stock issuable upon conversion of Convertible Preferred Stock) held by holders party to the Voting Agreement, voting as a single class, and one of which is elected by a majority of the outstanding Convertible Preferred Stock held by holders party to the Voting Agreement, voting as a single class. Dr. Conley is affiliated with Paladin Capital Group, Dr. Roberts is affiliated with Venrock and Dr. Stuelpnagel is trustee of the John R. Stuelpnagel Trust. Immediately prior to the

completion of this offering, the Voting Agreement will terminate and none of our stockholders will have any special rights regarding the election, appointment or removal of members of our board of directors.

Stock option grants to directors and executive officers

We have granted stock options to our certain of our directors and executive officers. For more information regarding the stock options and stock awards granted to our directors and named executive officers see the section titled "*Executive Compensation*".

Limitation of liability and indemnification of directors and officers

Our amended and restated certificate of incorporation will provide that no director will be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except as required by applicable law, as in effect from time to time. For more information regarding the limitations of liability and indemnification see the section titled "*Description of capital stock*".

Related-party transaction policy

We have adopted a formal written policy that applies to our executive officers, directors, holders of more than five percent of any class of our voting securities and any member of the immediate family of, and any entity affiliated with, any of the foregoing persons. Such persons will not be permitted to enter into a related-party transaction with us without the prior consent of our audit committee, or other independent members of our board of directors in the event it is inappropriate for our audit committee to review such transaction due to a conflict of interest. Any request for us to enter into a transaction with an executive officer, director, principal stockholder or any of their immediate family members or affiliates in which the amount involved exceeds $120,000 must first be presented to our audit committee for review, consideration and approval. In approving or rejecting any such proposal, our audit committee will consider the relevant facts and circumstances available and deemed relevant to our audit committee, including, but not limited to, whether the transaction will be on terms no less favorable than terms generally available to an unaffiliated third-party under the same or similar circumstances and the extent of the related-party's interest in the transaction.

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Principal stockholders

The following table sets forth information regarding beneficial ownership of our common stock as of August 14, 2019, by:

- each of our named executive officers and directors individually;
- all directors and executive officers as a group; and
- each person whom we know to beneficially own more than 5% of any class our common stock.

In accordance with the rules of the SEC, beneficial ownership includes voting or investment power with respect to securities and includes the shares issuable pursuant to stock options and warrants that are exercisable within 60 days of August 14, 2019. Shares issuable pursuant to stock options and warrants are deemed outstanding for computing the percentage of the person holding such options or warrants, as applicable, but are not outstanding for computing the percentage of any other person.

We have based our calculation of the percentage of beneficial ownership prior to this offering on 8,344,223 shares of our Class A common stock and 75,754,278 shares of our Class B common stock outstanding and reflected:

- the filing and effectiveness of our amended and restated certificate of incorporation to be in effect at the closing of this offering;
- the reclassification of all outstanding shares of our Historical Class A common stock into Class B common stock and of our Historical Class B common stock (including outstanding options and warrants to purchase such shares) into Class A common stock prior to the closing of this offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*"; and
- the automatic conversion of all shares of our Convertible Preferred Stock outstanding as of August 14, 2019 into 67,704,278 shares of Class B common stock prior to the closing of the offering as described under "*Description of capital stock—Reclassification of common stock and conversion of Convertible Preferred Stock*".

We have based our calculation of the percentage of beneficial ownership after this offering on shares of our Class A common stock issued by us in this offering and shares of Class A common stock outstanding immediately after the completion of this offering, assuming that the underwriters will not exercise their option to purchase up to an additional shares of our Class A common stock from us in full.

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Unless otherwise indicated, the address for each listed stockholder is: c/o 10x Genomics, Inc., 6230 Stoneridge Mall Road, Pleasanton, California 94588. To our knowledge, except as indicated in the footnotes to this table and pursuant to applicable community property laws, the persons named in the table have sole voting and investment power with respect to all shares of common stock.

	Shares beneficially owned before the offering(1)				Shares beneficially owned after the offering(1)			
	Class A common stock		Class B common stock		Class A common stock		Class B common stock	
Name and address of beneficial owner	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Named Executive Officers and Directors:								
Serge Saxonov(2)	946,347	11.2%	3,031,865	4.0%		%	3,031,865	4.0%
Benjamin J. Hindson(3)	710,059	7.8%	3,000,000	4.0%		%	3,000,000	4.0%
Justin J. McAnear(4)	602,499	6.7%	—	—		%	—	—
Eric S. Whitaker(5)	589,791	6.7%	—	—			—	—
John R. Stuelpnagel(6)	723,991	8.7%	2,105,736	2.8%		%	2,105,736	2.8%
Paul A. Conley(7)	—	—	—	—		%	—	—
Sridhar Kosaraju(8)	130,000	1.5%	—	—		%	—	—
Mathai Mammen(9)	200,000	2.3%	—	—		%	—	—
Bryan E. Roberts(10)	—	—	—	—		%	—	—
Shehnaaz Suliman(11)	100,000	1.2%	—	—		%	—	—
All executive officers and directors as a group (12 persons)(12)	4,967,061	56.8%	8,105,736	10.8%		%	8,105,736	10.8%
5% Stockholders:								
Foresite Capital Management and affiliated entities(13)	—	—	13,688,762	18.1%	—	—	13,688,762	18.1%
Venrock and affiliated entities(14)	—	—	12,362,861	16.3%	—	—	12,362,861	16.3%
Paladin Capital Group and affiliated entities(15)	—	—	8,675,167	11.5%	—	—	8,675,167	11.5%
Fidelity and affiliated entities(16)	—	—	8,584,511	11.3%	—	—	8,584,511	11.3%

* Less than 1%.

(1) Assumes no exercise by underwriters of their option to purchase additional shares. See the section titled "*Underwriting*".

(2) Consists of (a) 892,356 shares of Class A common stock, (b) 53,991 shares of Class A common stock issuable pursuant to stock options exercisable within 60 days of August 14, 2019, (c) 1,281,865 shares of Class B common stock and (d) 1,750,000 shares of Class B common stock held by Polaris 2018 Irrevocable Trust, Antares 2018 Irrevocable Trust, Arcturus 2018 Irrevocable Trust, FLY 2018 Irrevocable Trust, LY 2018 Irrevocable Trust, MS 2018 Irrevocable Trust and NS 2018 Irrevocable Trust of which Dr. Saxonov is the sole trustee.

(3) Consists of (a) 3,000,000 shares of Class B common stock and (b) 688,020 shares of Class A common stock issuable pursuant to stock options exercisable within 60 days of August 14, 2019.

(4) Consists of (a) 600,000 shares of Class A common stock issuable pursuant to stock options that may be early exercised at any time (no shares of which were vested as of August 14, 2019) and (b) 2,499 shares of Class A common stock issuable pursuant to stock options exercisable within 60 days of August 14, 2019.

(5) Consists of (a) 84,000 shares of Class A common stock, (b) 441,000 shares of Class A common stock issuable pursuant to stock options that may be early exercised at any time (178,500 shares of which were vested as of August 14, 2019) and (c) 64,791 shares of Class A common stock issuable pursuant to stock options exercisable within 60 days of August 14, 2019.

(6) Consists of (a) 2,105,736 shares of Class B common stock held by the John R. Stuelpnagel Trust of which Dr. Stuelpnagel is the sole trustee and (b) 723,991 shares of Class A common stock (152,084 shares of which were subject to our right of repurchase as of August 14, 2019).

(7) Dr. Conley does not have voting and dispositive power over the shares held of record by the Paladin Funds (as defined below) and Paladin III Co-Investment LLC.

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(8) Consists of 130,000 shares of Class A common stock issuable pursuant to stock options that may be early exercised at any time (10,833 shares of which were vested as of August 14, 2019).

(9) Consists of 200,000 shares of Class A common stock issuable pursuant to stock options that may be early exercised at any time (108,333 shares of which were vested as of August 14, 2019).

(10) Dr. Roberts does not have voting and dispositive power over the shares held by Venrock and affiliated entities.

(11) Consists of 100,000 shares of Class A common stock issuable pursuant to stock options that may be early exercised at any time (no shares of which were vested as of August 14, 2019).

(12) Consists of (a) 1,788,680 shares of Class A common stock beneficially owned by our named executive officers, current directors and other executive officers (152,084 shares of which were subject to our right of repurchase as of August 14, 2019), (b) 2,271,000 shares of Class A common stock issuable pursuant to stock options that may be early exercised at any time (797,666 shares of which were vested as of August 14, 2019) by our named executive officers, current directors and other executive officers, (c) 846,307 shares of Class A common stock subject to outstanding stock options that are exercisable within 60 days of August 14, 2019 by our named executive officers, current directors and other executive officers and (d) 8,105,736 shares of Class B common stock beneficially owned by our named executive officers, current directors and other executive officers.

(13) Consists of (a) 6,851,509 shares of Class B common stock owned directly by Foresite Capital Fund I, L.P. ("FCF I") and (b) 6,837,253 shares of Class B common stock owned directly by Foresite Capital Fund II, L.P. ("FCF II"). Foresite Capital Management I, LLC ("FCM I"), the general partner of FCF I, may be deemed to have sole voting and dispositive power over such shares. Foresite Capital Management II, LLC ("FCM II"), the general partner of FCF II, may be deemed to have sole voting and dispositive power over such shares. James B. Tananbaum ("Mr. Tananbaum"), in his capacity as managing member of FCM I and FCM II, may be deemed to have sole voting and dispositive power over these shares. Each Reporting Person disclaims the existence of a "group". Each of FCM I, FCM II and its members and Mr. Tananbaum disclaim beneficial ownership of any of these shares except to the extent of any pecuniary interest therein, and the filing of this report is not an admission that FCM I, FCM II and its members or Mr. Tananbaum is the beneficial owner of these shares for purposes of Section 16 or any other purpose. The address for Mr. Tananbaum and each of the entities identified in this footnote is c/o Foresight Capital Management, 600 Montgomery Street, Suite 4500, San Francisco CA, 94111.

(14) Consists of (a) 10,284,332 shares of Class B common stock held by Venrock Associates VI, L.P. ("VA VI"), (b) 1,271,045 shares of Class B common stock held by Venrock Healthcare Capital Partners II, L.P. ("VHCP II"), (c) 807,484 shares of Class B common stock held by Venrock Partners VI, L.P. ("VP VI") and (d) 515,386 shares of Class B common stock held by VHCP Co-Investment Holdings II, LLC ("VHCP II Co"). Venrock Management VI, LLC ("VM VI"), is the sole general partner of VA VI. Venrock Partners Management VI, LLC ("VPM VI"), is the sole general partner of VP VI. VHCP Management II, LLC ("VHCPM II"), is the sole general partner of VHCP II and the sole manager of VHCP II Co. VM VI, VPM VI and (VHCPM II) expressly disclaim beneficial ownership over all shares held by VA VI, VP VI, VHCP II and VHCP II Co, except to the extent of their indirect pecuniary interest therein. Dr. Roberts is a member of VM VI and VPM VI and disclaims beneficial ownership over all shares held by VA VI, and VP VI, except to the extent of his indirect pecuniary interests therein. Dr. Bong Koh and Nimish Shah are the sole managers of (VHCPM II) and disclaim beneficial ownership over all shares held by VHCP II and VHCP II Co, except to the extent of their indirect pecuniary interests therein. The address of each of the entities and individuals identified in this footnote is c/o Venrock, 3340 Hillview Avenue, Palo Alto, CA 94304.

(15) Consists of (a) 2,176,409 shares of Class B common stock held by Paladin III, LP, (b) 1,836,875 shares of Class B common stock held by Paladin III (NY City), LP, (c) 1,647,342 shares of Class B common stock held by Paladin III Co-Investment, LLC, (d) 1,261,564 shares of Class B common stock held by Paladin III (Cayman Islands), LP, (e) 626,602 shares of Class B common stock held by Paladin III (CA), LP, (f) 626,602 shares of Class B common stock held by Paladin III (HR), LP and (g) 499,773 shares of Class B common stock held by Paladin International, LLC, collectively except for Paladin III Co-Investment, LLC and Paladin International, LLC (the "Paladin Funds"). Paladin Holdings III, L.P. is the general partner of the Paladin Funds and Managing Member of Paladin III Co-Investment, LLC and Paladin Cyber Holdings, L.P. is the Managing Member of Paladin Intentional, LLC and its Investment Committee, led by Michael Steed as its Chairman, may be deemed to have voting and dispositive power over the shares held of record by the Paladin Funds, Paladin III Co-Investment LLC and Paladin International, LLC. In addition, Dr. Paul Conley is a Managing Director of Paladin Capital Management, LLC and is a member of our board of directors as Paladin's designee representing the Paladin Funds, Paladin III Co-Investment, LLC and Paladin International, LLC, but does not have voting and dispositive power over the shares held of record for the Paladin entities heretofore defined. The address for each of the entities and individuals identified in this footnote is c/o Paladin Capital Management, LLC, 2020 K Street, NW—Suite 620, Washington, DC 20006.

(16) Consists of (a) 3,018,778 shares of Class B common stock held by Mag & Co fbo Fidelity Select Portfolios: Health Care Portfolio, (b) 2,870,040 shares of Class B common stock held by Powhatan & Co., LLC fbo Fidelity Mt. Vernon Street Trust: Fidelity Growth Company Fund, (c) 1,487,064 shares of Class B common stock held by Mag & Co fbo Fidelity Growth Company Commingled Pool, (d) 815,857 shares of Class B common stock held by WAVELENGTH + CO fbo Fidelity Mt. Vernon Street Trust: Fidelity Series Growth Company Fund and (e) 392,772 shares of Class B common stock held by Fidelity Select Portfolios: Medical Technology and Devices Portfolio. These accounts are managed by direct or indirect subsidiaries of FMR LLC. Abigail P. Johnson is a Director, the Chairman, the Chief Executive Officer and the President of FMR LLC. Members of the Johnson family, including Abigail P. Johnson, are the predominant owners, directly or through trusts, of Series B voting common shares of FMR LLC, representing 49% of the voting power of FMR LLC. The Johnson family group and all other Series B shareholders have entered into a shareholders' voting agreement under which all Series B voting common shares will be voted in accordance with the majority vote of Series B voting common shares. Accordingly, through their ownership of voting common shares and the execution of the shareholders' voting agreement, members of the Johnson family may be deemed, under the Investment Company Act of 1940, to form a controlling group with respect to FMR LLC. Neither FMR LLC nor Abigail P. Johnson has the sole power to vote or direct the voting of the shares owned directly by the various investment companies registered under the Investment Company Act ("Fidelity Funds") advised by Fidelity Management & Research Company ("FMR Co"), a wholly owned subsidiary of FMR LLC, which power resides with the Fidelity Funds' Boards of Trustees. Fidelity Management & Research Company carries out the voting of the shares under written guidelines established by the Fidelity Funds' Boards of Trustees. The address for FMR LLC is 200 Seaport Blvd. V12G, Boston, MA 02210.

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Description of capital stock

The following description summarizes certain important terms of our capital stock, as they are expected to be in effect immediately prior to the completion of this offering. Our board of directors has adopted, and our stockholders have approved, an amended and restated certificate of incorporation and amended and restated bylaws that will become effective immediately prior to the completion of this offering and this description summarizes the provisions that are expected to be included in such documents. Because it is only a summary, it does not contain all the information that may be important to you. For a complete description of the matters set forth in this section titled "*Description of capital stock*", you should refer to our amended and restated certificate of incorporation, amended and restated bylaws and amended and restated investors' rights agreement, which are included as exhibits to the registration statement of which this prospectus forms a part, and to the applicable provisions of Delaware law.

Reclassification of common stock and conversion of Convertible Preferred Stock

Our Seventh Amended and Restated Certificate of Incorporation authorizes the issuance of three classes of stock, designated as "Class A common stock" (the "Historical Class A common stock"), "Class B common stock" (the "Historical Class B common stock") and "Preferred Stock", which has been divided into six series (all six series of which are collectively referred to herein as the "Convertible Preferred Stock").

Pursuant to the terms of our Seventh Amended and Restated Certificate of Incorporation, the rights of the holders of Historical Class A common stock and Historical Class B common stock are identical, except with respect to voting and conversion. Holders of Historical Class A common stock are entitled to one hundred votes for each share held on all matters submitted to a vote of stockholders and holders of Historical Class B common stock are entitled to one vote for each share held. In addition, each share of Historical Class A common stock is convertible at any time at the option of the holder into one share of Historical Class B common stock.

Shares of Convertible Preferred Stock are convertible into shares of Historical Class A common stock pursuant to the terms of our Seventh Amended and Restated Certificate of Incorporation and convert automatically upon the occurrence of specified events, including in connection with a qualifying public offering registered under the Securities Act.

Prior to the completion of this offering, we will amend our certificate of incorporation to provide for the reclassification of our (i) Historical Class A common stock into our Class B common stock and (ii) Historical Class B common stock into our Class A common stock. The terms of the Class A common stock and Class B common stock are summarized below. As a result of this reclassification, all outstanding shares of Convertible Preferred Stock will, immediately prior to the completion of this offering, automatically convert into shares of Class B common stock, all shares of our Historical Class B common stock reserved for issuance under the 2012 Stock Plan will become reserved shares of Class A common stock, all outstanding stock options to purchase shares of our Historical Class B common stock will become stock options to purchase shares of our Class A common stock and all outstanding warrants to purchase shares of our Historical Class B common stock will become warrants to purchase shares of our Class A common stock.

In addition, we will further amend our certificate of incorporation and bylaws to include the provisions described below.

Authorized and outstanding capital stock

Immediately following the completion of this offering, our authorized capital stock will consist of 1,200,000,000 shares of capital stock, $0.00001 par value per share, of which:

- 1,000,000,000 shares are designated as Class A common stock;

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- 100,000,000 shares are designated as Class B common stock; and
- 100,000,000 shares are designated as preferred stock.

Assuming the conversion of all outstanding shares of our Convertible Preferred Stock into shares of our Class B common stock, which will occur immediately prior to the completion of this offering, as of June 30, 2019 there were 8,095,382 shares of our Class A common stock outstanding, held by 170 stockholders of record and 75,754,278 shares of our Class B common stock outstanding, held by 62 stockholders of record. The number of shares of our authorized capital stock designated as Class B common stock are equal to the number of shares of Class B common stock outstanding immediately following the completion of this offering. As such, we will not be able to issue any additional shares of Class B common stock following the completion of this offering unless we obtain stockholder approval to amend our amended and restated certificate of incorporation. Pursuant to our amended and restated certificate of incorporation and amended and restated bylaws, our board of directors will have the authority, without stockholder approval except as required by the listing standards of Nasdaq, to issue additional shares of our capital stock.

Common stock

We have two classes of authorized common stock, Class A common stock and Class B common stock. The rights of the holders of Class A common stock and Class B common stock are identical except with respect to voting and conversion.

Voting rights. Holders of our Class A common stock are entitled to one vote for each share held on all matters submitted to a vote of stockholders and holders of our Class B common stock are entitled to ten votes for each share held. The holders of our Class A common stock and Class B common stock vote together as a single class, unless otherwise required by law. Delaware law could require either holders of our Class A common stock or our Class B common stock to vote separately as a single class in the following circumstances:

- if we were to seek to amend our amended and restated certificate of incorporation to increase the authorized number of shares of a class of stock, or to increase or decrease the par value of a class of stock, then that class would be required to vote separately to approve the proposed amendment; and
- if we were to seek to amend our amended and restated certificate of incorporation in a manner that alters or changes the powers, preferences, or special rights of a class of stock in a manner that affected its holders adversely, then that class would be required to vote separately to approve the proposed amendment.

Stockholders do not have the ability to cumulate votes for the election of directors. Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the closing of our initial public offering will provide for a classified board of directors consisting of three classes of approximately equal size, each serving staggered three-year terms. Only the directors in one class will be subject to election by a plurality of the votes cast at each annual meeting of stockholders, with the directors in the other classes continuing for the remainder of their respective three year terms.

Dividend rights. Subject to preferences that may apply to any shares of preferred stock outstanding at the time, the holders of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and then only at the times and in the amounts that our board of directors may determine. See the section titled "*Dividend policy*" for additional information.

Rights upon liquidation. If we become subject to a liquidation, dissolution, or winding-up, the assets legally available for distribution to our stockholders would be distributable ratably among the holders of our common stock and any participating preferred stock outstanding at that time, subject to prior satisfaction of all

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outstanding debt and liabilities and the preferential rights of and the payment of liquidation preferences, if any, on any outstanding shares of preferred stock; provided, however, that holders of common stock may receive, or have the right to elect to receive, different or disproportionate consideration if the only difference is that any securities distributed to the holder of a share of Class B common stock have ten times the voting power of any securities distributed to the holder of a share of Class A common stock.

No preemptive or similar rights. Our common stock is not entitled to preemptive rights and is not subject to conversion (other than as described below), redemption or sinking fund provisions.

Conversion of Class B common stock. Each share of Class B common stock is convertible at any time at the option of the holder into one share of Class A common stock. Following the completion of this offering, shares of Class B common stock will automatically convert into shares of Class A common stock upon sale or transfer (other than certain transfers described in our amended and restated certificate of incorporation, including estate planning transfers where sole dispositive power and exclusive voting control with respect to the shares of Class B common stock are retained by the transferring holder and transfers between our co-founders. In addition, each outstanding share of Class B common stock held by a stockholder who is a natural person, or held by the permitted entities of such natural person (as described in our amended and restated certificate of incorporation), will convert automatically into one share of Class A common stock upon the death of such natural person. In the event of the death or permanent and total disability of a co-founder, shares of Class B common stock held by such co-founder or his permitted entities will convert to Class A common stock, provided that the conversion will be deferred for nine months, or up to 18 months if approved by a majority of our independent directors, following his death or permanent and total disability. Transfers between our co-founders are permitted transfers and will not result in conversion of the shares of Class B common stock that are transferred. Each share of Class B common stock will convert automatically into one share of Class A common stock upon (i) a date on or after the one year anniversary of the closing of our initial public offering that is specified by affirmative vote of the holders of a majority of the then outstanding shares of Class B common stock, (ii) the date on which the outstanding shares of Class B common stock represent less than two percent of the aggregate number of shares of the then outstanding Class A common stock and Class B common stock, or (iii) nine months after the death or total disability of both of our co-founders, or such later date not to exceed a total period of 18 months after such death or disability as may be approved by a majority of our independent directors.

Fully paid and non assessable. In connection with this offering, our legal counsel will opine that the shares of our Class A common stock to be issued in this offering will be fully paid and non-assessable.

Preferred stock

Our board of directors is authorized, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series, and to fix the designation, powers, preferences and rights of the shares of each series and any of its qualifications, limitations or restrictions, in each case without further vote or action by our stockholders. Our board of directors can also increase or decrease the number of shares of any series of preferred stock, but not below the number of shares of that series then outstanding, without any further vote or action by our stockholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of our Class A common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and might adversely affect the market price of our Class A common stock and the voting and other rights of the holders of our common stock. We have no current plan to issue any shares of preferred stock.

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Warrants

As of June 30, 2019, warrants to purchase an aggregate of 266,099 shares of Historical Class B common at a weighted-average exercise price of $1.17 per share were outstanding. Upon the closing of this offering, these warrants will become exercisable for the same number of shares of Class A common stock.

All of these warrants have a net exercise provision under which its holder may, in lieu of payment of the exercise price in cash, surrender the warrant and receive a net amount of shares based on the fair market value of our Class A common stock at the time of exercise of the warrant after deduction of the aggregate exercise price. Each warrant contains provisions for the adjustment of the exercise price and the number of shares issuable upon the exercise of the warrant in the event of certain stock dividends, stock splits, reorganizations, reclassifications and consolidations.

Stock options

As of June 30, 2019, we had outstanding stock options to purchase an aggregate of 15,634,182 shares of our Historical Class B common stock, with a weighted-average exercise price of $3.61 per share, under our equity compensation plans. Upon the closing of this offering, these options will become exercisable for the same number of shares of Class A common stock.

Amended and Restated Certificate of Incorporation and Amended and Restated Bylaw provisions

Our amended and restated certificate of incorporation and our amended and restated bylaws will include a number of provisions that could deter hostile takeovers or delay or prevent changes in control of our board of directors or management team, including the following:

Multi-class stock. As described above in "*—Common stock—Voting rights*", our amended and restated certificate of incorporation provides for a multi-class common stock structure, which will provide our pre-offering investors, which includes our executive officers, employees, directors and their affiliates, with significant influence over matters requiring stockholder approval, including the election of directors and significant corporate transactions, such as a merger or other sale of our company or its assets.

Board of directors vacancies. Our amended and restated certificate of incorporation and amended and restated bylaws will authorize only our board of directors to fill vacant directorships, including newly created seats. In addition, the number of directors constituting our board of directors will be permitted to be set only by a resolution adopted by a majority vote of our entire board of directors. These provisions would prevent a stockholder from increasing the size of our board of directors and then gaining control of our board of directors by filling the resulting vacancies with its own nominees. This will make it more difficult to change the composition of our board of directors and will promote continuity of management.

Classified board of directors. Our amended and restated certificate of incorporation and amended and restated bylaws will provide that our board of directors is classified into three classes of directors. A third-party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors. See the section titled "*Management—Classified board of directors*".

Stockholder action; special meeting of stockholders. Our amended and restated certificate of incorporation and amended and restated bylaws will provide that our stockholders may not take action by written consent, but may only take action at annual or special meetings of our stockholders. As a result, a holder controlling a majority of our capital stock would not be able to amend our amended and restated bylaws or remove directors

without holding a meeting of our stockholders called in accordance with our amended and restated bylaws. Our amended and restated bylaws will further provide that special meetings of our stockholders may be called only by a majority of our board of directors, the Chairman of our board of directors, or our Chief Executive Officer, thus prohibiting a stockholder from calling a special meeting. These provisions might delay the ability of our stockholders to force consideration of a proposal or for stockholders controlling a majority of our capital stock to take any action, including the removal of directors.

Advance notice requirements for stockholder proposals and director nominations. Our amended and restated bylaws will provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders or to nominate candidates for election as directors at our annual meeting of stockholders. Our amended and restated bylaws will also specify certain requirements regarding the form and content of a stockholder's notice. These provisions might preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our annual meeting of stockholders if the proper procedures are not followed. We expect that these provisions may also discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of our company.

No cumulative voting. The Delaware General Corporation Law provides that stockholders are not entitled to cumulate votes in the election of directors unless a corporation's certificate of incorporation provides otherwise. Our amended and restated certificate of incorporation does not provide for cumulative voting.

Directors removed only for cause. Our amended and restated certificate of incorporation will provide that stockholders may remove directors only for cause by the affirmative vote of holders of at least two-thirds of the voting power of our then outstanding capital stock.

Amendment of charter and bylaws provisions. Any amendment of the above provisions in our amended and restated certificate of incorporation and amended and restated bylaws would require approval by holders of at least two-thirds of the voting power of our then outstanding capital stock.

Issuance of undesignated preferred stock. Our board of directors will have the authority, without further action by our stockholders, to issue up to 100,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by our board of directors. The existence of authorized but unissued shares of preferred stock would enable our board of directors to render more difficult or to discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or other means.

Delaware Law

We will be governed by the provisions of Section 203 of the Delaware General Corporation Law. In general, Section 203 prohibits a public Delaware corporation from engaging in a "business combination" with an "interested stockholder" for a period of three years after the date of the transaction in which the person became an interested stockholder, unless:

- any breach of the director's duty of loyalty to our company or our stockholders;
- the transaction was approved by the board of directors prior to the time that the stockholder became an interested stockholder;
- upon consummation of the transaction which resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding shares owned by directors who are also

officers of the corporation and shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or

- at or subsequent to the time the stockholder became an interested stockholder, the business combination was approved by the board of directors and authorized at an annual or special meeting of the stockholders, and not by written consent, by the affirmative vote of at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

In general, Section 203 defines a "business combination" to include mergers, asset sales and other transactions resulting in financial benefit to a stockholder and an "interested stockholder" as a person who, together with affiliates and associates, owns, or within three years did own, 15% or more of the corporation's outstanding voting stock. These provisions may have the effect of delaying, deferring, or preventing changes in control of our company.

Limitation of liability of directors and officers

Our amended and restated certificate of incorporation will provide that no director will be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except as required by applicable law, as in effect from time to time. Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability:

- any breach of the director's duty of loyalty to our company or our stockholders;
- any act or omission not in good faith or which involved intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; and
- any transaction from which the director derived an improper personal benefit.

As a result, neither we nor our stockholders have the right, through stockholders' derivative suits on our behalf, to recover monetary damages against a director for breach of fiduciary duty as a director, including breaches resulting from grossly negligent behavior, except in the situations described above.

Our amended and restated bylaws will also provide that, to the fullest extent permitted by law, we will indemnify any officer or director of our company against all damages, claims and liabilities arising out of the fact that the person is or was our director or officer, or served any other enterprise at our request as a director or officer. Amending this provision will not reduce our indemnification obligations relating to actions taken before an amendment.

Forum selection

Our amended and restated bylaws will provide that, unless we consent in writing to the selection of an alternative forum, the sole and exclusive forum for the following types of actions or proceedings under Delaware statutory or common law: (i) any derivative action or proceeding brought on our behalf, (ii) any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers or other employees to us or our stockholders, (iii) any action asserting a claim against us or any of our directors or officers arising pursuant to any provision of the Delaware General Corporation Law, our certificate of incorporation or our amended and

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restated bylaws or (iv) any other action asserting a claim that is governed by the internal affairs doctrine shall be a state or federal court located within the State of Delaware, in all cases subject to the courts having jurisdiction over indispensable parties named as defendants. Although we believe these provisions benefit us by providing increased consistency in the application of Delaware law for the specified types of actions and proceedings, the provisions may have the effect of discouraging lawsuits against us or our directors and officers. Nothing in our amended and restated bylaws will preclude stockholders that assert claims under the Securities Act or the Exchange Act from bringing such claims in state or federal court, subject to applicable law. Any person or entity purchasing or otherwise acquiring any interest in shares of our capital stock shall be deemed to have notice of and consented to the foregoing forum selection provisions.

Anti-takeover effects of some provisions

Certain provisions of Delaware law, our amended and restated certificate of incorporation and our amended and restated bylaws, which are summarized below, may have the effect of delaying, deferring or discouraging another person from acquiring control of us. They are also designed, in part, to encourage persons seeking to acquire control of us to negotiate first with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging a proposal to acquire us because negotiation of these proposals could result in an improvement of their terms.

Registration rights

After the completion of this offering, certain holders of our Class B common stock will be entitled to rights with respect to the registration of their shares under the Securities Act. These registration rights are contained in our Amended and Restated Investors' Rights Agreement (the "IRA"). We and certain holders of our Convertible Preferred Stock are parties to the IRA. Immediately prior to the completion of this offering, each share of outstanding Convertible Preferred Stock will convert automatically into one share of Class B common stock. The registration rights set forth in the IRA will expire two years following the completion of this offering, or, with respect to any particular stockholder, when such stockholder is able to sell all of its shares on any one day pursuant to Rule 144 of the Securities Act or a similar exemption. We will pay the registration expenses (other than underwriting discounts, selling commissions and transfer taxes) of the holders of the shares registered pursuant to the registrations described below. In an underwritten offering, the managing underwriter, if any, has the right, subject to specified conditions, to limit the number of shares such holders may include. We expect that our stockholders will waive their rights under the IRA (i) to notice of this offering and (ii) to include their registrable shares in this offering. In addition, in connection with this offering, we expect that each stockholder that has registration rights will agree not to sell or otherwise dispose of any securities without the prior written consent of the company and J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC through and including , 2020, subject to certain terms and conditions and early release of certain holders in specified circumstances. See the section titled "*Shares eligible for future sale—Lock-up agreements*" for additional information regarding such restrictions.

Certain stockholders who are party to the IRA have waived their registration rights and the registration rights of the other stockholders who are party to the IRA, in each case, with respect to this offering and have entered into contractual lock-up agreements with the underwriters. See the sections titled "*Shares eligible for future sale*" and "*Underwriting*" for more information.

Demand registration rights. After the completion of this offering, the holders of up to shares of our Class B common stock and shares of our Class A common stock will be entitled to certain demand registration rights. At any time beginning six months after the effective date of this offering, the holders of at

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least 50% of these shares then outstanding can request that we register the offer and sale of their shares, or such request must cover securities in which the anticipated aggregate public offering price, before payment of underwriting discounts and commissions, is at least $10,000,000. We are obligated to effect only two such registrations. If we determine that it would be seriously detrimental to us and our stockholders to effect such a demand registration, we have the right to defer such registration, not more than once in any 12-month period, for a period of up to 90 days.

S-3 registration rights. After the completion of this offering, the holders of up to shares of our Class B common stock and shares of our Class A common stock will be entitled to certain Form S-3 registration rights. The holders of at least 20% of these shares then outstanding may make a written request that we register the offer and sale of their shares on a registration statement on Form S-3 if we are eligible to file a registration statement on Form S-3 so long as the request covers securities the anticipated aggregate public offering price of which, before payment of underwriting discounts and commissions, is at least $1,000,000. These stockholders may make an unlimited number of requests for registration on Form S-3; however, we will not be required to effect a registration on Form S-3 if we have effected two such registrations within the 12-month period preceding the date of the request. Additionally, if we determine that it would be seriously detrimental to us and our stockholders to effect such a registration, we have the right to defer such registration, not more than once in any 12-month period, for a period of up to 120 days.

Piggyback registration rights. After the completion of this offering, if we propose to register the offer and sale of our Class A common stock under the Securities Act, in connection with the public offering of such Class A common stock, the holders of up to shares of our Class B common stock and shares of our Class A common stock will be entitled to certain “piggyback” registration rights allowing the holders to include their shares in such registration, subject to certain marketing and other limitations. As a result, whenever we propose to file a registration statement under the Securities Act, other than with respect to (i) a registration in which the only Class A common stock being registered is Class A common stock issuable upon conversion of debt securities that are also being registered, (ii) a registration related to any employee benefit plan or a corporate reorganization or other transaction covered by Rule 145 promulgated under the Securities Act, or (iii) a registration on any registration form which does not include substantially the same information as would be required to be included in a registration statement covering the public offering of our Class A common stock, the holders of these shares are entitled to notice of the registration and have the right, subject to certain limitations, to include their shares in the registration.

Listing

We have applied for the listing of our Class A common stock on Nasdaq under the symbol “TXG”.

Transfer agent and registrar

Upon completion of this offering, the transfer agent and registrar for our common stock will be American Stock Transfer & Trust Company, LLC. The transfer agent and registrar’s address is 6201 15th Avenue, Brooklyn, New York 11219.

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Shares eligible for future sale

Prior to this offering, there has been no public market for our Class A common stock. Future sales of substantial amounts of our Class A common stock in the public market could adversely affect market prices prevailing from time to time. Furthermore, because only a limited number of shares will be available for sale shortly after this offering due to existing contractual and legal restrictions on resale as described below, there may be sales of substantial amounts of our Class A common stock in the public market after the restrictions lapse. This may adversely affect the prevailing market price and our ability to raise equity capital in the future.

Upon completion of this offering, we will have shares of Class A common stock outstanding assuming no exercise by the underwriters of their stock option to purchase additional shares and no exercise of any stock options or warrants after June 30, 2019 and shares of Class B common stock outstanding. Of these shares, shares, or shares of our Class A common stock if the underwriters exercise their stock option to purchase additional shares in full, sold in this offering will be freely transferable without restriction or registration under the Securities Act, except for any shares purchased by one of our existing "affiliates", as that term is defined in Rule 144 under the Securities Act. The remaining shares of Class A common stock outstanding and all outstanding shares of Class B common stock (including the shares of Class A common stock into which such shares are convertible) are "restricted shares" as defined in Rule 144 may be sold in the public market only if registered or if they qualify for an exemption from registration under Rules 144 or 701 of the Securities Act. As a result of the contractual lock-up period through and including , 2020 and the provisions of Rules 144 and 701, these shares will be available for sale in the public market as follows:

Number of Shares	Date
	On the date of this prospectus
	After 91 days from the date of this prospectus
	Beginning , 2020 (subject, in some cases, to volume limitations)
	At various times after , 2020 (subject, in some cases, to volume limitations)

Rule 144

In general, a person who has beneficially owned restricted shares of our Class A common stock for at least six months would be entitled to sell such securities, provided that (i) such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale and (ii) we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Persons who have beneficially owned restricted shares of our Class A common stock for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of our Class A common stock then outstanding, which will equal approximately shares immediately after this offering, assuming no exercise by the underwriters of their stock option to purchase additional shares; or
- the average weekly trading volume of our Class A common stock on Nasdaq during the four calendar weeks preceding the filing of a notice on Form 144 with respect to the sale;

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provided, in each case, that we are subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144 to the extent applicable.

Rule 701

In general, under Rule 701, any of our employees, directors, officers, consultants or advisors who purchases shares from us in connection with a compensatory stock or stock option plan or other written agreement before the effective date of this offering is entitled to resell such shares 90 days after the effective date of this offering in reliance on Rule 144, without having to comply with the holding period requirements or other restrictions contained in Rule 701.

The SEC has indicated that Rule 701 will apply to typical stock options granted by an issuer before it becomes subject to the reporting requirements of the Exchange Act, along with the shares acquired upon exercise of such stock options, including exercises after the date of this prospectus. Securities issued in reliance on Rule 701 are restricted securities and, subject to the contractual restrictions described above, beginning 90 days after the date of this prospectus, may be sold by persons other than "affiliates", as defined in Rule 144, subject only to the manner of sale provisions of Rule 144 and by "affiliates" under Rule 144 without compliance with its one-year minimum holding period requirement.

Registration rights

Upon completion of this offering, the holders of shares of Class A common stock, including shares of Class A common stock issuable upon the exercise of outstanding stock options or their transferees, and the holders of shares of Class B common stock, as converted into an equivalent number of shares of our Class A common stock upon such offer and sale, will be entitled to various rights with respect to the registration of these shares under the Securities Act. Registration of these shares under the Securities Act would result in these shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration, except for shares purchased by affiliates. See the sections titled "*Description of capital stock—Registration rights*" and "*—Lock-up agreements*" of such shares are covered by lock-up agreements. Following the expiration of the lock-up period, registration of these shares under the Securities Act would result in the shares becoming freely tradable without restriction under the Securities Act immediately upon the effectiveness of the registration.

Stock options

As of June 30, 2019, stock options to purchase a total of 15,634,182 shares of Class A common stock were outstanding. All of the shares subject to stock options are subject to lock-up agreements. An additional 1,323,858 shares of Class A common stock were available for future grants under our stock plans at such date. See the section titled "*Executive Compensation—Equity incentive plans*" for more information regarding the 2012 Stock Plan and our Omnibus Incentive Plan.

Upon completion of this offering, we intend to file a registration statement under the Securities Act covering all shares of Class A common stock subject to outstanding stock options or issuable pursuant to the 2012 Stock Plan, our Omnibus Incentive Plan and our ESPP. Subject to Rule 144 volume limitations applicable to affiliates, shares registered under any registration statements will be available for sale in the open market, except to the extent that the shares are subject to vesting restrictions with us or the contractual lock-up restrictions described below.

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Lock-up agreements

All of our directors, executive officers and the holders of substantially all of our capital stock and securities convertible or exchangeable for our Class A common stock will agree, subject to certain exceptions, from the date of this prospectus through and including , 2020, that they will not, without the consent of J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, hedge, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Class A common stock or any securities convertible into or exercisable or exchangeable for shares of Class A common stock (including, without limitation, shares of Class A common stock or such other securities which may be deemed to be beneficially owned by the undersigned in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to undertake any of the foregoing, (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of shares of Class A common stock or such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of shares of Class A common stock or such other securities, in cash or otherwise or (iii) make any demand for or exercise any right with respect to the registration of any shares of Class A common stock or any security convertible into or exercisable or exchangeable for shares of Class A common stock. See the section titled "*Underwriting*".

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Material United States federal income and estate tax consequences to non-U.S. holders

The following is a summary of material United States federal income and estate tax consequences of the purchase, ownership and disposition of our Class A common stock as of the date hereof. Except where noted, this summary deals only with Class A common stock that is held as a capital asset by a non-U.S. holder (as defined below).

A “non-U.S. holder” means a beneficial owner of our Class A common stock (other than an entity treated as a partnership for United States federal income tax purposes) that is not, for United States federal income tax purposes, any of the following:

- an individual citizen or resident of the United States;
- a corporation (or any other entity treated as a corporation for United States federal income tax purposes) created or organized in or under the laws of the United States, any state thereof or the District of Columbia;
- an estate the income of which is subject to United States federal income taxation regardless of its source; or
- a trust if it (i) is subject to the primary supervision of a court within the United States and one or more United States persons have the authority to control all substantial decisions of the trust or (ii) has a valid election in effect under applicable United States Treasury regulations to be treated as a United States person.

This summary is based upon provisions of the Code, regulations, rulings and judicial decisions as of the date hereof. Those authorities may be changed, perhaps retroactively, so as to result in United States federal income and estate tax consequences different from those summarized below. This summary does not address all aspects of United States federal income and estate taxes and does not deal with foreign, state, local or other tax considerations that may be relevant to non-U.S. holders in light of their particular circumstances. In addition, it does not represent a detailed description of the United States federal income and estate tax consequences applicable to you if you are subject to special treatment under the United States federal income tax laws (including if you are a United States expatriate, foreign pension fund, “controlled foreign corporation”, “passive foreign investment company” or a partnership or other pass-through entity for United States federal income tax purposes). We cannot assure you that a change in law will not alter significantly the tax considerations that we describe in this summary.

If a partnership (or other entity treated as a partnership for United States federal income tax purposes) holds our Class A common stock, the tax treatment of a partner will generally depend upon the status of the partner and the activities of the partnership. If you are a partner of a partnership holding our Class A common stock, you should consult your tax advisors.

If you are considering the purchase of our Class A common stock, you should consult your own tax advisors concerning the particular United States federal income and estate tax consequences to you of the purchase, ownership and disposition of our Class A common stock, as well as the consequences to you arising under other United States federal tax laws and the laws of any other taxing jurisdiction.

Dividends

In the event that we make a distribution of cash or other property (other than certain pro rata distributions of our stock) in respect of our Class A common stock, the distribution generally will be treated as a dividend for United States federal income tax purposes to the extent it is paid from our current or accumulated earnings and profits, as determined under United States federal income tax principles. Any portion of a distribution that

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exceeds our current and accumulated earnings and profits generally will be treated first as a tax-free return of capital, causing a reduction in the adjusted tax basis of a non-U.S. holder's Class A common stock, and to the extent the amount of the distribution exceeds a non-U.S. holder's adjusted tax basis in our Class A common stock, the excess will be treated as gain from the disposition of our Class A common stock (the tax treatment of which is discussed below under "*—Gain on disposition of Class A common stock*").

Dividends paid to a non-U.S. holder generally will be subject to withholding of United States federal income tax at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. However, dividends that are effectively connected with the conduct of a trade or business by the non-U.S. holder within the United States (and, if required by an applicable income tax treaty, are attributable to a United States permanent establishment) are not subject to the withholding tax, provided certain certification and disclosure requirements are satisfied. Instead, such dividends are subject to United States federal income tax on a net income basis in the same manner as if the non-U.S. holder were a United States person as defined under the Code. Any such effectively connected dividends received by a foreign corporation may be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty.

A non-U.S. holder who wishes to claim the benefit of an applicable treaty rate and avoid backup withholding, as discussed below, for dividends will be required (i) to provide the applicable withholding agent with a properly executed Internal Revenue Service ("IRS") Form W-8BEN or Form W-8BEN-E (or other applicable form) certifying under penalty of perjury that such holder is not a United States person as defined under the Code and is eligible for treaty benefits or (ii) if our Class A common stock is held through certain foreign intermediaries, to satisfy the relevant certification requirements of applicable United States Treasury regulations. Special certification and other requirements apply to certain non-U.S. holders that are pass-through entities rather than corporations or individuals.

A non-U.S. holder eligible for a reduced rate of United States federal withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by timely filing an appropriate claim for refund with the IRS.

Gain on disposition of Class A common stock

Subject to the discussion of backup withholding below, any gain realized by a non-U.S. holder on the sale or other disposition of our Class A common stock generally will not be subject to United States federal income tax unless:

- the gain is effectively connected with a trade or business of the non-U.S. holder in the United States (and, if required by an applicable income tax treaty, is attributable to a United States permanent establishment of the non-U.S. holder);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of that disposition and certain other conditions are met; or
- we are or have been a "United States real property holding corporation" for United States federal income tax purposes and certain other conditions are met.

A non-U.S. holder described in the first bullet point immediately above will be subject to tax on the gain derived from the sale or other disposition in the same manner as if the non-U.S. holder were a United States person as defined under the Code. In addition, if any non-U.S. holder described in the first bullet point immediately above is a foreign corporation, the gain realized by such non-U.S. holder may be subject to an additional "branch profits tax" at a 30% rate or such lower rate as may be specified by an applicable income tax treaty. An

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individual non-U.S. holder described in the second bullet point immediately above will be subject to a 30% (or such lower rate as may be specified by an applicable income tax treaty) tax on the gain derived from the sale or other disposition, which gain may be offset by United States source capital losses even though the individual is not considered a resident of the United States (provided such individual has timely filed United States federal income tax returns with respect to such losses).

Generally, a corporation is a “United States real property holding corporation” if the fair market value of its United States real property interests equals or exceeds 50% of the sum of the fair market value of its worldwide real property interests and its other assets used or held for use in a trade or business (all as determined for United States federal income tax purposes). We believe we are not and do not anticipate becoming a “United States real property holding corporation” for United States federal income tax purposes.

Federal estate tax

Class A common stock held by an individual non-U.S. holder at the time of death will be included in such holder’s gross estate for United States federal estate tax purposes, unless an applicable estate tax treaty provides otherwise.

Information reporting and backup withholding

Distributions paid to a non-U.S. holder and the amount of any tax withheld with respect to such distributions generally will be reported to the IRS. Copies of the information returns reporting such distributions and any withholding may also be made available to the tax authorities in the country in which the non-U.S. holder resides under the provisions of an applicable income tax treaty.

A non-U.S. holder will not be subject to backup withholding on dividends received if such holder certifies under penalty of perjury that it is a non-U.S. holder (and the payor does not have actual knowledge or reason to know that such holder is a United States person as defined under the Code), or such holder otherwise establishes an exemption.

Information reporting and, depending on the circumstances, backup withholding will apply to the proceeds of a sale or other disposition of our Class A common stock made within the United States or conducted through certain United States-related financial intermediaries, unless the beneficial owner certifies under penalty of perjury that it is a non-U.S. holder (and the payor does not have actual knowledge or reason to know that the beneficial owner is a United States person as defined under the Code), or such owner otherwise establishes an exemption.

Backup withholding is not an additional tax and any amounts withheld under the backup withholding rules will be allowed as a refund or a credit against a non-U.S. holder’s United States federal income tax liability provided the required information is timely furnished to the IRS.

Additional withholding requirements

Under Sections 1471 through 1474 of the Code (such Sections commonly referred to as “FATCA”), a 30% United States federal withholding tax may apply to any dividends paid on our Class A common stock to (i) a “foreign financial institution” (as specifically defined in the Code) which does not provide sufficient documentation, typically on IRS Form W-8BEN-E, evidencing either (a) an exemption from FATCA, or (b) its compliance (or deemed compliance) with FATCA (which may alternatively be in the form of compliance with an intergovernmental agreement with the United States) in a manner which avoids withholding, or (ii) a “non-financial foreign entity” (as specifically defined in the Code) which does not provide sufficient documentation, typically on IRS Form W-8BEN-E,

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evidencing either (x) an exemption from FATCA, or (y) adequate information regarding certain substantial United States beneficial owners of such entity (if any). If a dividend payment is both subject to withholding under FATCA and subject to the withholding tax discussed above under "*—Dividends*", the withholding under FATCA may be credited against, and therefore reduce, such other withholding tax. Under applicable Treasury regulations and administrative guidance, withholding under FATCA would have applied to payments of gross proceeds from the sale or other disposition of stock on or after January 1, 2019, although under recently proposed regulations (the preamble to which specifies that taxpayers are permitted to rely on such proposed regulations pending finalization), no withholding would apply with respect to payments of gross proceeds. You should consult your own tax advisors regarding these requirements and whether they may be relevant to your ownership and disposition of our Class A common stock.

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Underwriting

We are offering the shares of Class A common stock described in this prospectus through a number of underwriters. J.P. Morgan Securities LLC, Goldman Sachs & Co. LLC and BofA Securities, Inc. are acting as joint book-running managers of the offering and as representatives of the underwriters. We have entered into an underwriting agreement with the underwriters. Subject to the terms and conditions of the underwriting agreement, we have agreed to sell to the underwriters, and each underwriter has severally agreed to purchase, at the public offering price less the underwriting discounts and commissions set forth on the cover page of this prospectus, the number of shares of Class A common stock listed next to its name in the following table:

Name	Number of shares
J.P. Morgan Securities LLC	
Goldman Sachs & Co. LLC	
BofA Securities, Inc.	
Cowen and Company, LLC	
Total	

The underwriters are committed to purchase all the shares of Class A common stock offered by us if they purchase any shares. The underwriting agreement also provides that if an underwriter defaults, the purchase commitments of non-defaulting underwriters may also be increased or the offering may be terminated.

The underwriters propose to offer the shares of Class A common stock directly to the public at the initial public offering price set forth on the cover page of this prospectus and to certain dealers at that price less a concession not in excess of $ per share. After the initial offering of the shares of Class A common stock to the public, the underwriters may change the offering price and the other selling terms. Sales of shares made outside of the United States may be made by affiliates of the underwriters. The offering of the shares by the underwriters is subject to receipt and acceptance and subject to the underwriters' right to reject any order in whole or in part.

The underwriters have an option to buy up to additional shares of Class A common stock from us to cover sales of shares by the underwriters which exceed the number of shares specified in the table above. The underwriters have 30 days from the date of this prospectus to exercise this option to purchase additional shares. If any shares are purchased with this option to purchase additional shares, the underwriters will purchase shares in approximately the same proportion as shown in the table above. If any additional shares of Class A common stock are purchased, the underwriters will offer the additional shares on the same terms as those on which the shares are being offered.

The underwriting fee is equal to the public offering price per share of Class A common stock less the amount paid by the underwriters to us per share of Class A common stock. The underwriting fee is $ per share. The following table shows the per share and total underwriting discounts and commissions to be paid to the underwriters assuming both no exercise and full exercise of the underwriters' option to purchase additional shares.

	Without exercise of option to purchase additional shares	With full exercise of option to purchase additional shares
Per share	$	$
Total	$	$

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We estimate that the total expenses of this offering, including registration, filing and listing fees, printing fees and legal and accounting expenses, but excluding the underwriting discounts and commissions, will be approximately $. We have agreed to reimburse the underwriters for expenses relating to the clearance of this offering with the Financial Industry Regulatory Authority, Inc. in an amount up to $.

A prospectus in electronic format may be made available on the websites maintained by one or more underwriters, or selling group members, if any, participating in the offering. The underwriters may agree to allocate a number of shares to underwriters and selling group members for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters and selling group members that may make internet distributions on the same basis as other allocations.

We have agreed that we will not, subject to certain exceptions, for a period of 180 days after the date of this prospectus (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, or otherwise transfer or dispose of, directly or indirectly, or file with, or submit to, the SEC a registration statement under the Securities Act relating to, any shares of Class A common stock or any securities convertible into or exercisable or exchangeable for shares of Class A common stock, or publicly disclose the intention to make any offer, sale, pledge, disposition, submission or filing, or (ii) enter into any swap, hedging, or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of shares of Class A common stock or any such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of shares of Class A common stock or such other securities, in cash or otherwise, without the prior written consent of J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC. Notwithstanding the foregoing, we may issue shares of our Class A common stock or securities convertible into or exercisable or exchangeable for shares of our Class A common stock in amount equal to up to % of the total number of outstanding shares of our Class A common stock outstanding immediately following the issuance of the shares of Class A common stock to be sold in this offering plus the shares of Class A common stock reserved for issuance under our 2012 Stock Plan, Omnibus Incentive Plan and ESPP, in connection with mergers, acquisitions or commercial or strategic transactions (including, without limitation, entry into joint ventures, marketing or distribution agreements or collaboration agreements or acquisitions of technology, assets or intellectual property licenses) provided that the recipient execute a lockup agreement with respect to such shares.

All of our directors, executive officers and the holders of substantially all of our capital stock and securities convertible or exchangeable for our Class A common stock will agree, subject to certain exceptions, from the date of this prospectus through and including , 2020, that they will not, without the consent of J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC (i) offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, hedge, lend, or otherwise transfer or dispose of, directly or indirectly, any shares of Class A common stock or any securities convertible into or exercisable or exchangeable for shares of Class A common stock (including, without limitation, shares of Class A common stock or such other securities which may be deemed to be beneficially owned by the undersigned in accordance with the rules and regulations of the SEC and securities which may be issued upon exercise of a stock option or warrant), or publicly disclose the intention to undertake any of the foregoing, (ii) enter into any swap or other agreement that transfers, in whole or in part, any of the economic consequences of ownership of shares of Class A common stock or such other securities, whether any such transaction described in clause (i) or (ii) above is to be settled by delivery of shares of Class A common stock or such other securities, in cash or otherwise or (iii) make any demand for or exercise any right with respect to the registration of any shares of Class A common stock or any security convertible into or exercisable or exchangeable for shares of Class A common stock.

We have agreed to indemnify the underwriters against certain liabilities, including liabilities under the Securities Act.

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We have applied for the listing of our Class A common stock on Nasdaq under the symbol “TXG”.

In connection with this offering, the underwriters may engage in stabilizing transactions, which involves making bids for, purchasing and selling shares of Class A common stock in the open market for the purpose of preventing or retarding a decline in the market price of the Class A common stock while this offering is in progress. These stabilizing transactions may include making short sales of the Class A common stock, which involves the sale by the underwriters of a greater number of shares of Class A common stock than they are required to purchase in this offering and the purchasing of shares of Class A common stock on the open market to cover positions created by short sales. Short sales may be “covered” shorts, which are short positions in an amount not greater than the underwriters’ option to purchase additional shares referred to above, or may be “naked” shorts, which are short positions in excess of that amount. The underwriters may close out any covered short position either by exercising their option to purchase additional shares, in whole or in part, or by purchasing shares in the open market. In making this determination, the underwriters will consider, among other things, the price of shares available for purchase in the open market compared to the price at which the underwriters may purchase shares through the option to purchase additional shares. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the Class A common stock in the open market that could adversely affect investors who purchase in this offering. To the extent that the underwriters create a naked short position, they will purchase shares in the open market to cover the position.

The underwriters have advised us that, pursuant to Regulation M of the Securities Act, they may also engage in other activities that stabilize, maintain or otherwise affect the price of the Class A common stock, including the imposition of penalty bids. This means that if the representatives of the underwriters purchase Class A common stock in the open market in stabilizing transactions or to cover short sales, the representatives can require the underwriters that sold those shares as part of this offering to repay the underwriting discount received by them.

These activities may have the effect of raising or maintaining the market price of the Class A common stock or preventing or retarding a decline in the market price of the Class A common stock and, as a result, the price of the Class A common stock may be higher than the price that otherwise might exist in the open market. If the underwriters commence these activities, they may discontinue them at any time. The underwriters may carry out these transactions on Nasdaq, in the over-the-counter market or otherwise.

Prior to this offering, there has been no public market for our Class A common stock. The initial public offering price will be determined by negotiations between us and the representatives of the underwriters. In determining the initial public offering price, we and the representatives of the underwriters expect to consider a number of factors including:

- the information set forth in this prospectus and otherwise available to the representatives;
- our prospects and the history and prospects for the industry in which we compete;
- an assessment of our management;
- our prospects for future earnings;
- the general condition of the securities markets at the time of this offering;
- the recent market prices of, and demand for, publicly traded common stock of generally comparable companies; and
- other factors deemed relevant by the underwriters and us.

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Neither we nor the underwriters can assure investors that an active trading market will develop for shares of our Class A common stock, or that the shares will trade in the public market at or above the initial public offering price.

Other relationships

Certain of the underwriters and their affiliates have provided in the past to us and our affiliates and may provide from time to time in the future certain commercial banking, financial advisory, investment banking and other services for us and such affiliates in the ordinary course of their business, for which they have received and may continue to receive customary fees and commissions. In addition, from time to time, certain of the underwriters and their affiliates may effect transactions for their own account or the account of customers, and hold on behalf of themselves or their customers, long or short positions in our debt or equity securities or loans, and may do so in the future.

Selling restrictions

Other than in the United States, no action has been taken by us or the underwriters that would permit a public offering of the securities offered by this prospectus in any jurisdiction where action for that purpose is required. The securities offered by this prospectus may not be offered or sold, directly or indirectly, nor may this prospectus or any other offering material or advertisements in connection with the offer and sale of any such securities be distributed or published in any jurisdiction, except under circumstances that will result in compliance with the applicable rules and regulations of that jurisdiction. Persons into whose possession this prospectus comes are advised to inform themselves about and to observe any restrictions relating to the offering and the distribution of this prospectus. This prospectus does not constitute an offer to sell or a solicitation of an offer to buy any securities offered by this prospectus in any jurisdiction in which such an offer or a solicitation is unlawful.

Notice to prospective investors in the European Economic Area

In relation to each Member State of the European Economic Area which has implemented the Prospectus Directive (each, a “Relevant Member State”), with effect from and including the date on which the Prospectus Directive is implemented in that Relevant Member State, no offer of shares may be made to the public in that Relevant Member State other than:

(i) to any legal entity which is a qualified investor as defined in the Prospectus Directive;

(ii) to fewer than 150 natural or legal persons (other than qualified investors as defined in the Prospectus Directive), subject to obtaining the prior consent of the underwriters; or

(iii) in any other circumstances falling within Article 3(2) of the Prospectus Directive,

provided that no such offer of shares shall require the Company or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Directive or supplement a prospectus pursuant to Article 16 of the Prospectus Directive and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with each of the underwriters and the Company that it is a “qualified investor” within the meaning of the law in that Relevant Member State implementing Article 2(1)(e) of the Prospectus Directive.

In the case of any shares being offered to a financial intermediary as that term is used in Article 3(2) of the Prospectus Directive, each such financial intermediary will be deemed to have represented, acknowledged and

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agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an offer of any shares to the public other than their offer or resale in a Relevant Member State to qualified investors as so defined or in circumstances in which the prior consent of the representatives has been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an "offer of shares to the public" in relation to any shares in any Relevant Member State means the communication in any form and by means of sufficient information on the terms of the offer and the shares to be offered so as to enable an investor to decide to purchase shares, as the same may be varied in that Member State by any measure implementing the Prospectus Directive in that Member State, the expression "Prospectus Directive" means Directive 2003/71/EC (as amended, including by Directive 2010/73/EU), and includes any relevant implementing measure in the Relevant Member State.

Notice to prospective investors in the United Kingdom

In addition, in the United Kingdom, this document is being distributed only to, and is directed only at, and any offer subsequently made may only be directed at, persons who are "qualified investors" (as defined in the Prospectus Directive) (i) who have professional experience in matters relating to investments falling within Article 19(5) of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005, as amended (the "Order") and/or (ii) who are high net worth companies (or persons to whom it may otherwise be lawfully communicated) falling within Article 49(2)(a) to (d) of the Order (all such persons together being referred to as "relevant persons") or otherwise in circumstances which have not resulted and will not result in an offer to the public of the shares in the United Kingdom within the meaning of the Financial Services and Markets Act 2000.

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

Notice to prospective investors in Canada

The shares may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable provisions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 of National Instrument 33-105 Underwriting Conflicts ("NI 33-105"), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

Notice to prospective investors in Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange ("SIX") or on any other stock exchange or regulated trading facility in Switzerland. This document does not constitute a

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prospectus within the meaning of, and has been prepared without regard to the disclosure standards for, issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this document nor any other offering or marketing material relating to the shares or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this document nor any other offering or marketing material relating to the offering, the Company or the shares has been or will be filed with or approved by any Swiss regulatory authority. In particular, this document will not be filed with, and the offer of shares will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, and the offer of shares has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes ("CISA"). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of shares.

Notice to prospective investors in the Dubai International Financial Centre

This document relates to an Exempt Offer in accordance with the Markets Rules 2012 of the Dubai Financial Services Authority ("DFSA"). This document is intended for distribution only to persons of a type specified in the Markets Rules 2012 of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus supplement nor taken steps to verify the information set forth herein and has no responsibility for this document. The securities to which this document relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the securities offered should conduct their own due diligence on the securities. If you do not understand the contents of this document you should consult an authorized financial advisor.

In relation to its use in the Dubai International Financial Centre ("DIFC"), this document is strictly private and confidential and is being distributed to a limited number of investors and must not be provided to any person other than the original recipient and may not be reproduced or used for any other purpose. The interests in the securities may not be offered or sold directly or indirectly to the public in the DIFC.

Notice to prospective investors in the United Arab Emirates

The shares have not been, and are not being, publicly offered, sold, promoted or advertised in the United Arab Emirates (including the DIFC) other than in compliance with the laws of the United Arab Emirates (and the DIFC) governing the issue, offering and sale of securities. Further, this prospectus does not constitute a public offer of securities in the United Arab Emirates (including the DIFC) and is not intended to be a public offer. This prospectus has not been approved by or filed with the Central Bank of the United Arab Emirates, the Securities and Commodities Authority or the DFSA.

Notice to prospective investors in Australia

This prospectus:

- does not constitute a product disclosure document or a prospectus under Chapter 6D.2 of the Corporations Act 2001 (Cth) (the "Corporations Act");
- has not been, and will not be, lodged with the Australian Securities and Investments Commission ("ASIC"), as a disclosure document for the purposes of the Corporations Act and does not purport to include the information required of a disclosure document under Chapter 6D.2 of the Corporations Act;

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- does not constitute or involve a recommendation to acquire, an offer or invitation for issue or sale, an offer or invitation to arrange the issue or sale, or an issue or sale, of interests to a "retail client" (as defined in section 761G of the Corporations Act and applicable regulations) in Australia; and
- may only be provided in Australia to select investors who are able to demonstrate that they fall within one or more of the categories of investors ("Exempt Investors") available under section 708 of the Corporations Act.

The shares may not be directly or indirectly offered for subscription or purchased or sold, and no invitations to subscribe for or buy the shares may be issued, and no draft or definitive offering memorandum, advertisement or other offering material relating to any shares may be distributed in Australia, except where disclosure to investors is not required under Chapter 6D of the Corporations Act or is otherwise in compliance with all applicable Australian laws and regulations. By submitting an application for the shares, you represent and warrant to us that you are an Exempt Investor.

As any offer of shares under this document will be made without disclosure in Australia under Chapter 6D.2 of the Corporations Act, the offer of those securities for resale in Australia within 12 months may, under section 707 of the Corporations Act, require disclosure to investors under Chapter 6D.2 if none of the exemptions in section 708 applies to that resale. By applying for the shares you undertake to us that you will not, for a period of 12 months from the date of issue of the shares, offer, transfer, assign or otherwise alienate those securities to investors in Australia except in circumstances where disclosure to investors is not required under Chapter 6D.2 of the Corporations Act or where a compliant disclosure document is prepared and lodged with ASIC.

Notice to prospective investors in Japan

The shares have not been and will not be registered pursuant to Article 4, Paragraph 1 of the Financial Instruments and Exchange Act. Accordingly, none of the shares nor any interest therein may be offered or sold, directly or indirectly, in Japan or to, or for the benefit of, any "resident" of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan), or to others for re-offering or resale, directly or indirectly, in Japan or to or for the benefit of a resident of Japan, except pursuant to an exemption from the registration requirements of, and otherwise in compliance with, the Financial Instruments and Exchange Act and any other applicable laws, regulations and ministerial guidelines of Japan in effect at the relevant time.

Notice to prospective investors in Hong Kong

The shares have not been offered or sold and will not be offered or sold in Hong Kong, by means of any document, other than (i) to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong and any rules made under that Ordinance; or (ii) in other circumstances which do not result in the document being a "prospectus" as defined in the Companies (Winding Up and Miscellaneous Provisions) Ordinance (Cap. 32) of Hong Kong or which do not constitute an offer to the public within the meaning of that Ordinance. No advertisement, invitation or document relating to the shares has been or may be issued or has been or may be in the possession of any person for the purposes of issue, whether in Hong Kong or elsewhere, which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted to do so under the securities laws of Hong Kong) other than with respect to shares which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the Securities and Futures Ordinance and any rules made under that Ordinance.

Notice to prospective investors in Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for

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subscription or purchase, of shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the "SFA"), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275 of the SFA or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(i) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(ii) a trust (where the trustee is not an accredited investor) whose sole purpose is to hold investments and each beneficiary of the trust is an individual who is an accredited investor,

securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares pursuant to an offer made under Section 275 of the SFA except:

(i) to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

(ii) where no consideration is or will be given for the transfer;

(iii) where the transfer is by operation of law;

(iv) as specified in Section 276(7) of the SFA; or

(v) as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Solely for the purposes of its obligations pursuant to Section 309B of the SFA, we have determined, and hereby notify all relevant persons (as defined in the CMP Regulations 2018), that the shares are "prescribed capital markets products" (as defined in the CMP Regulations 2018) and Excluded Investment Products (as defined in MAS Notice SFA 04-N12: Notice on the Sale of Investment Products and MAS Notice FAA-N16: Notice on Recommendations on Investment Products).

Notice to prospective investors in Bermuda

Shares may be offered or sold in Bermuda only in compliance with the provisions of the Investment Business Act of 2003 of Bermuda which regulates the sale of securities in Bermuda. Additionally, non-Bermudian persons (including companies) may not carry on or engage in any trade or business in Bermuda unless such persons are permitted to do so under applicable Bermuda legislation.

Notice to prospective investors in Saudi Arabia

This document may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Offers of Securities Regulations as issued by the board of the Saudi Arabian Capital Market Authority ("CMA") pursuant to resolution number 2-11-2004 dated 4 October 2004 as amended by resolution number 1-28-2008, as amended (the "CMA Regulations"). The CMA does not make any representation as to the accuracy or completeness of this document and expressly disclaims any liability whatsoever for any loss arising from, or

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incurred in reliance upon, any part of this document. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this document, you should consult an authorized financial adviser.

Notice to prospective investors in the British Virgin Islands

The shares are not being and may not be offered to the public or to any person in the British Virgin Islands for purchase or subscription by or on behalf of the Company. The Company may be offered to companies incorporated under the BVI Business Companies Act, 2004 (British Virgin Islands) ("BVI Companies"), but only where the offer will be made to, and received by, the relevant BVI Company entirely outside of the British Virgin Islands. This prospectus has not been, and will not be, registered with the Financial Services Commission of the British Virgin Islands. No registered prospectus has been or will be prepared in respect of the shares for the purposes of the Securities and Investment Business Act, 2010 or the Public Issuers Code of the British Virgin Islands.

Notice to prospective investors in China

This prospectus does not constitute a public offer of shares, whether by sale or subscription, in the People's Republic of China (the "PRC"). The shares are not being offered or sold directly or indirectly in the PRC to or for the benefit of, legal or natural persons of the PRC.

Further, no legal or natural persons of the PRC may directly or indirectly purchase any of the shares or any beneficial interest therein without obtaining all prior PRC's governmental approvals that are required, whether statutorily or otherwise. Persons who come into possession of this document are required by the issuer and its representatives to observe these restrictions.

Notice to prospective investors in Korea

The shares have not been and will not be registered under the Financial Investments Services and Capital Markets Act of Korea and the decrees and regulations thereunder (the "FSCMA") and the shares have been, and will be, offered in Korea as a private placement under the FSCMA. None of the shares may be offered, sold or delivered directly or indirectly, or offered or sold to any person for re-offering or resale, directly or indirectly, in Korea or to any resident of Korea except pursuant to the applicable laws and regulations of Korea, including the FSCMA and the Foreign Exchange Transaction Law of Korea and the decrees and regulations thereunder (the "FETL"). Furthermore, the purchaser of the shares shall comply with all applicable regulatory requirements (including but not limited to requirements under the FETL) in connection with the purchase of the shares. By the purchase of the shares, the relevant holder thereof will be deemed to represent and warrant that if it is in Korea or is a resident of Korea, it purchased the shares pursuant to the applicable laws and regulations of Korea.

Notice to prospective investors in Malaysia

No prospectus or other offering material or document in connection with the offer and sale of the shares has been or will be registered with the Securities Commission of Malaysia ("Commission") for the Commission's approval pursuant to the Capital Markets and Services Act 2007. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares may not be circulated or distributed, nor may the shares be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Malaysia other than (i) a closed end fund approved by the Commission; (ii) a holder of a Capital Markets Services License; (iii) a person

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who acquires the shares, as principal, if the offer is on terms that the shares may only be acquired at a consideration of not less than RM250,000 (or its equivalent in foreign currencies) for each transaction; (iv) an individual whose total net personal assets or total net joint assets with his or her spouse exceeds RM3 million (or its equivalent in foreign currencies), excluding the value of the primary residence of the individual; (v) an individual who has a gross annual income exceeding RM300,000 (or its equivalent in foreign currencies) per annum in the preceding twelve months; (vi) an individual who, jointly with his or her spouse, has a gross annual income of RM400,000 (or its equivalent in foreign currencies), per annum in the preceding twelve months; (vii) a corporation with total net assets exceeding RM10 million (or its equivalent in a foreign currencies) based on the last audited accounts; (viii) a partnership with total net assets exceeding RM10 million (or its equivalent in foreign currencies); (ix) a bank licensee or insurance licensee as defined in the Labuan Financial Services and Securities Act 2010; (x) an Islamic bank licensee or takaful licensee as defined in the Labuan Financial Services and Securities Act 2010; and (xi) any other person as may be specified by the Commission; provided that, in the each of the preceding categories (i) to (xi), the distribution of the shares is made by a holder of a Capital Markets Services License who carries on the business of dealing in securities. The distribution in Malaysia of this prospectus is subject to Malaysian laws. This prospectus does not constitute and may not be used for the purpose of public offering or an issue, offer for subscription or purchase, invitation to subscribe for or purchase any securities requiring the registration of a prospectus with the Commission under the Capital Markets and Services Act 2007.

Notice to prospective investors in Taiwan

The shares have not been and will not be registered with the Financial Supervisory Commission of Taiwan pursuant to relevant securities laws and regulations and may not be sold, issued or offered within Taiwan through a public offering or in circumstances which constitutes an offer within the meaning of the Securities and Exchange Act of Taiwan that requires a registration or approval of the Financial Supervisory Commission of Taiwan. No person or entity in Taiwan has been authorized to offer, sell, give advice regarding or otherwise intermediate the offering and sale of the shares in Taiwan.

Notice to prospective investors in South Africa

Due to restrictions under the securities laws of South Africa, the shares are not offered, and the offer shall not be transferred, sold, renounced or delivered, in South Africa or to a person with an address in South Africa, unless one or other of the following exemptions applies:

(i) the offer, transfer, sale, renunciation or delivery is to:

- (a) persons whose ordinary business is to deal in securities, as principal or agent;
- (b) the South African Public Investment Corporation;
- (c) persons or entities regulated by the Reserve Bank of South Africa;
- (d) authorized financial service providers under South African law;
- (e) financial institutions recognized as such under South African law;
- (f) a wholly-owned subsidiary of any person or entity contemplated in (c), (d) or (e), acting as agent in the capacity of an authorized portfolio manager for a pension fund or collective investment scheme (in each case duly registered as such under South African law); or
- (g) any combination of the person in (a) to (f); or

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(ii) the total contemplated acquisition cost of the securities, for any single addressee acting as principal is equal to or greater than ZAR1,000,000.

No “offer to the public” (as such term is defined in the South African Companies Act, No. 71 of 2008 (as amended or re-enacted) (the “South African Companies Act”)) in South Africa is being made in connection with the issue of the shares. Accordingly, this document does not, nor is it intended to, constitute a “registered prospectus” (as that term is defined in the South African Companies Act) prepared and registered under the South African Companies Act and has not been approved by, and/or filed with, the South African Companies and Intellectual Property Commission or any other regulatory authority in South Africa. Any issue or offering of the shares in South Africa constitutes an offer of the shares in South Africa for subscription or sale in South Africa only to persons who fall within the exemption from “offers to the public” set out in section 96(1)(a) of the South African Companies Act. Accordingly, this document must not be acted on or relied on by persons in South Africa who do not fall within section 96(1)(a) of the South African Companies Act (such persons being referred to as “SA Relevant Persons”). Any investment or investment activity to which this document relates is available in South Africa only to SA Relevant Persons and will be engaged in South Africa only with SA relevant persons.

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Legal matters

The validity of the issuance of the shares of Class A common stock offered hereby will be passed upon for 10x Genomics, Inc. by Simpson Thacher & Bartlett LLP. Cooley LLP is representing the underwriters.

Experts

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements at December 31, 2017 and 2018, and for each of the two years in the period ended December 31, 2018, as set forth in their report. We have included our financial statements in the prospectus and elsewhere in the registration statement in reliance of Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

Where you can find more information

We have filed with the SEC a registration statement on Form S-1 under the Securities Act with respect to the shares of Class A common stock offered hereby. This prospectus does not contain all of the information set forth in the registration statement and the exhibits and schedules thereto. For further information with respect to the company and its Class A common stock, reference is made to the registration statement and the exhibits and any schedules filed therewith. Statements contained in this prospectus as to the contents of any contract or other document referred to are not necessarily complete and in each instance, if such contract or document is filed as an exhibit, reference is made to the copy of such contract or other document filed as an exhibit to the registration statement, each statement being qualified in all respects by such reference. The SEC maintains a website at www.sec.gov, from which interested persons can electronically access the registration statement, including the exhibits and any schedules thereto and which contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

As a result of the offering, we will be required to file periodic reports and other information with the SEC. We also maintain a website at https://www.10xgenomics.com. Our website and the information contained therein or connected thereto shall not be deemed to be incorporated into this prospectus or the registration statement of which it forms a part.

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10x Genomics, Inc.

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Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of 10x Genomics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of 10x Genomics, Inc. (the "Company") as of December 31, 2017 and 2018, the related consolidated statements of operations and comprehensive loss, convertible preferred stock and stockholders' equity (deficit) and cash flows for the years then ended, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2018, and the results of its operations and its cash flows for the years then ended in conformity with U.S. generally accepted accounting principles.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2015.

Redwood City, California
May 10, 2019

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10x Genomics, Inc.

Consolidated Balance Sheets
(in thousands, except share and per share data)

	December 31, 2017	December 31, 2018	June 30, 2019 (unaudited)	Pro forma June 30, 2019 (unaudited) (Note 2)
Assets				
Current assets:				
Cash and cash equivalents	$ 47,857	$ 65,080	$ 56,034	
Accounts receivable, net	13,341	28,088	26,803	
Inventory	4,838	8,570	12,325	
Tenant allowance receivable	—	1,478	7,944	
Prepaid expenses and other current assets	2,071	3,020	4,120	
Total current assets	68,107	106,236	107,226	
Property and equipment, net	6,925	11,127	38,337	
Restricted cash	—	5,008	5,008	
Other assets	577	1,939	5,023	
Total assets	$ 75,609	$ 124,310	$ 155,594	
Liabilities, Convertible Preferred Stock and Stockholders' Equity (Deficit)				
Current liabilities:				
Accounts payable	$ 5,443	$ 8,792	$ 9,429	
Accrued compensation and related benefits	4,477	7,047	6,399	
Accrued expenses and other current liabilities	3,662	8,172	16,434	
Term loans, current portion	4,224	4,187	4,887	
Accrued legal expenses	3,223	1,769	3,321	
Deferred revenue, current	1,112	2,395	2,757	
Total current liabilities	22,141	32,362	43,227	
Term loans, noncurrent portion	6,335	25,489	24,777	
Accrued contingent liabilities	—	38,000	55,255	
Deferred revenue, noncurrent	713	1,102	1,131	
Deferred rent, noncurrent	1	3,329	15,019	
Other noncurrent liabilities	514	771	889	
Total liabilities	29,704	101,053	140,298	
Commitments and contingencies (Note 7)				
Convertible preferred stock, $0.00001 par value, 59,730,213 shares authorized, issued and outstanding as of December 31, 2017, 67,904,871 shares authorized and 67,704,278 shares issued and outstanding as of December 31, 2018 and June 30, 2019 (unaudited); aggregate liquidation preference of $242,588 as of December 31, 2018 and June 30, 2019 (unaudited); no shares issued and outstanding, pro forma (unaudited)	158,414	243,244	243,244	
Stockholders' equity (deficit):				
Historical common stock, $0.00001 par value; 170,000,000 shares authorized as of December 31, 2017, 12,883,930 shares issued and outstanding as of December 31, 2017; 190,955,000 shares authorized as of December 31, 2018 and June 30, 2019 (unaudited), 14,549,801 shares issued and outstanding as of December 31, 2018, 16,145,382 shares issued and outstanding as of June 30, 2019 (unaudited); shares issued and outstanding, pro forma (unaudited)	1	1	1	
Additional paid-in capital	6,136	11,165	17,715	
Accumulated deficit	(118,631)	(231,116)	(245,630)	
Accumulated other comprehensive loss	(15)	(37)	(34)	
Total stockholders' equity (deficit)	(112,509)	(219,987)	(227,948)	
Total liabilities, convertible preferred stock and stockholders' equity (deficit)	$ 75,609	$ 124,310	$ 155,594	

The accompanying notes are an integral part of these consolidated financial statements.

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10x Genomics, Inc.

Consolidated Statements of Operations and Comprehensive Loss
(in thousands, except share and per share data)

	Year Ended December 31,		Six Months Ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Revenue	$ 71,085	$ 146,313	$ 59,152	$ 109,397
Cost of revenue	10,560	28,661	8,520	28,971
Gross profit	60,525	117,652	50,632	80,426
Operating expenses:				
Research and development	32,164	47,537	23,372	32,999
In-process research and development	—	62,363	6,206	—
Selling, general and administrative	46,736	87,936	41,920	59,464
Accrued contingent liabilities	—	30,580	—	1,360
Total operating expenses	78,900	228,416	71,498	93,823
Loss from operations	(18,375)	(110,764)	(20,866)	(13,397)
Other income (expense):				
Interest income	308	1,024	461	505
Interest expense	(811)	(2,409)	(1,062)	(1,379)
Other income (expense), net	137	(249)	(120)	(141)
Total other income (expense)	(366)	(1,634)	(721)	(1,015)
Loss before provision for income taxes	(18,741)	(112,398)	(21,587)	(14,412)
Provision for income taxes	21	87	29	102
Net loss	$ (18,762)	$ (112,485)	$ (21,616)	(14,514)
Other comprehensive income (loss):				
Foreign currency translation adjustment	(15)	(22)	16	3
Comprehensive loss	$ (18,777)	$ (112,507)	$ (21,600)	(14,511)
Net loss per share attributable to Historical common stockholders, basic and diluted	$ (1.62)	$ (8.40)	$ (1.66)	$ (0.96)
Weighted-average shares used to compute net loss per share attributable to Historical common stockholders, basic and diluted	11,587,751	13,392,273	12,985,535	15,187,258
Pro forma net loss per share attributable to Historical common stockholders, basic and diluted (unaudited)		$ (1.45)		$ (0.18)
Weighted-average shares used to compute pro forma net loss per share attributable to Historical common stockholders, basic and diluted (unaudited)		77,494,992		82,891,536

The accompanying notes are an integral part of these consolidated financial statements.

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10x Genomics, Inc.

Consolidated Statements of Convertible Preferred Stock and Stockholders' Equity (Deficit)
(in thousands, except share data)

	Convertible Preferred Stock		Historical Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount				
Balance as of January 1, 2017	55,264,133	$ 138,450	11,330,679	$ 1	$ 3,437	$ (99,869)	$ —	$ (96,431)
Issuance of Series C convertible preferred stock, net of issuance costs	4,466,080	19,964	—	—	—	—	—	—
Issuance of Historical Class B common stock upon exercise of options	—	—	1,628,251	—	926	—	—	926
Repurchase of unvested Historical Class B common stock related to early exercised options	—	—	(75,000)	—	—	—	—	—
Vesting of shares subject to repurchase, including early exercised options	—	—	—	—	112	—	—	112
Stock-based compensation	—	—	—	—	1,661	—	—	1,661
Net loss	—	—	—	—	—	(18,762)	—	(18,762)
Other comprehensive income (loss)	—	—	—	—	—	—	(15)	(15)
Balance as of December 31, 2017	59,730,213	158,414	12,883,930	1	6,136	(118,631)	(15)	(112,509)
Issuance of Series D convertible preferred stock, net of issuance costs	5,224,658	49,878	—	—	—	—	—	—
Issuance of Series D-1 convertible preferred stock, net of issuance costs	2,749,407	34,952	—	—	—	—	—	—
Issuance of Historical Class B common stock upon exercise of options	—	—	1,508,762	—	1,173	—	—	1,173
Issuance of Historical Class B common stock for in-process research and development	—	—	157,109	—	792	—	—	792
Vesting of shares subject to repurchase, including early exercised options	—	—	—	—	256	—	—	256
Issuance of warrants to purchase Historical common stock	—	—	—	—	150	—	—	150
Stock-based compensation	—	—	—	—	2,658	—	—	2,658
Net loss	—	—	—	—	—	(112,485)	—	(112,485)
Other comprehensive income (loss)	—	—	—	—	—	—	(22)	(22)
Balance as of December 31, 2018	67,704,278	243,244	14,549,801	1	11,165	(231,116)	(37)	(219,987)
Issuance of Historical Class B common stock upon exercise of options (unaudited)	—	—	1,595,581	—	2,005	—	—	2,005
Vesting of shares subject to repurchase, including early exercised options (unaudited)	—	—	—	—	161	—	—	161
Stock-based compensation (unaudited)	—	—	—	—	4,384	—	—	4,384
Net loss (unaudited)	—	—	—	—	—	(14,514)	—	(14,514)
Other comprehensive income (loss) (unaudited)	—	—	—	—	—	—	3	3
Balance as of June 30, 2019 (unaudited)	67,704,278	$ 243,244	16,145,382	$ 1	$ 17,715	$ (245,630)	$ (34)	$ (227,948)
Balance as of December 31, 2017	59,730,213	158,414	12,883,930	1	6,136	(118,631)	(15)	(112,509)
Issuance of Series D convertible preferred stock, net of issuance costs (unaudited)	5,224,658	49,878	—	—	—	—	—	—
Issuance of Historical Class B common stock upon exercise of options (unaudited)	—	—	648,175	—	461	—	—	461
Vesting of shares subject to repurchase, including early exercised options (unaudited)	—	—	—	—	18	—	—	18
Issuance of warrants to purchase Historical common stock (unaudited)	—	—	—	—	150	—	—	150
Stock-based compensation (unaudited)	—	—	—	—	1,006	—	—	1,006
Net loss (unaudited)	—	—	—	—	—	(21,616)	—	(21,616)
Other comprehensive income (loss) (unaudited)	—	—	—	—	—	—	16	16
Balance as of June 30, 2018 (unaudited)	64,954,871	208,292	13,532,105	1	7,771	(140,247)	1	(132,474)

The accompanying notes are an integral part of these consolidated financial statements.

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10x Genomics, Inc.

Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31,		Six Months Ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Operating activities				
Net loss	$(18,762)	$(112,485)	$(21,616)	$(14,514)
Adjustments to reconcile net loss to net cash used in operating activities:				
Depreciation and amortization	4,305	3,905	2,167	2,180
Stock-based compensation	1,661	2,658	1,006	4,384
Historical Class B common stock issued for in-process research and development	—	792	—	—
Loss on disposal of property and equipment	—	251	12	614
Accretion of discount on term loans	149	455	206	46
Changes in operating assets and liabilities:				
Accounts receivable	(5,131)	(14,747)	(3,957)	1,360
Inventory	(1,995)	(3,732)	(1,600)	(3,755)
Tenant allowance receivable	—	(1,478)	—	(6,466)
Prepaid expenses and other current assets	(702)	(951)	(406)	(1,176)
Other assets	33	(999)	(337)	(73)
Accounts payable	3,034	2,587	5,118	(986)
Accrued compensation and other related benefits	3,498	2,600	(1,267)	(645)
Deferred revenue	1,317	1,673	677	390
Accrued contingent liabilities	—	38,000	—	17,255
Accrued expenses and other current liabilities	1,844	1,701	(367)	2,978
Deferred rent, noncurrent	(68)	3,328	4	11,690
Other noncurrent liabilities	118	33	134	119
Net cash provided by (used in) operating activities	(10,699)	(76,409)	(20,226)	13,401
Investing activities				
Purchases of property and equipment	(3,756)	(6,284)	(3,261)	(22,508)
Purchase of intangible assets	—	(425)	—	—
Net cash used in investing activities	(3,756)	(6,709)	(3,261)	(22,508)
Financing activities				
Proceeds from term loans	—	19,512	19,512	—
Payments on term loans	—	(704)	(704)	—
Payments on capital lease obligations	(393)	(69)	(69)	—
Proceeds from issuance of preferred stock, net of issuance costs	19,964	84,830	49,878	—
Repurchase of unvested Historical Class B common stock related to early exercised shares	(80)	—	—	
Proceeds from issuance of Historical Class B common stock upon exercise of stock options	1,092	1,798	461	2,005
Deferred offering costs for initial public offering	—	—	—	(1,946)
Net cash provided by financing activities	20,583	105,367	69,078	59
Effect of exchange rates on changes on cash, cash equivalents, and restricted cash	(14)	(18)	11	2
Net increase (decrease) in cash, cash equivalents, and restricted cash	6,114	22,231	45,602	(9,046)
Cash, cash equivalents, and restricted cash at beginning of year	41,743	47,857	47,857	70,088
Cash, cash equivalents, and restricted cash at end of year	$ 47,857	$ 70,088	$ 93,459	$ 61,042
Supplemental disclosures of cash flow information				
Cash paid for interest	$ 658	$ 1,824	$ 745	$ 1,134
Cash paid for taxes	$ —	$ 6	$ —	$ 22
Noncash investing and financing activities				
Purchases of property and equipment included in accounts payable and accrued expenses and other current liabilities	$ 250	$ 2,260	$ 294	$ 9,679
Deferred offering costs in accounts payable and accrued expenses and other current liabilities	$ —	$ —	$ —	$ 1,142
Debt discount included in accrued expenses and other current liabilities	$ —	$ —	$ —	$ 58

The accompanying notes are an integral part of these consolidated financial statements.

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10x Genomics, Inc.

Notes to Consolidated Financial Statements

1. Description of Business and Basis of Presentation

Organization and Description of Business

10x Genomics, Inc. (the "Company") was incorporated in the state of Delaware on July 2, 2012. The Company's integrated solutions include the Company's Chromium instruments, which are referred to as "instruments", its enzymes, reagents, microfluidic chips and other consumable products, which are referred to as "consumables", and software for analyzing biological systems. These solutions guide customers through the workflow from sample preparation to next-generation sequencing to subsequent analysis and visualization. Each of the Company's solutions is designed to interrogate a major class of biological information that is impactful to researchers. The Company began commercial and manufacturing operations and selling its instruments and consumables in 2015. The Company's headquarters is located in Pleasanton, California and has wholly-owned subsidiaries in Sweden, Netherlands, Singapore, Germany and China.

Since inception, the Company has incurred net losses. During the years ended December 31, 2017 and 2018, the Company incurred net losses of $18.8 million and $112.5 million, respectively, and net losses of $21.6 million and $14.5 million during the six months ended June 30, 2018 and 2019 (unaudited), respectively. As of December 31, 2018 and June 30, 2019 (unaudited), the Company had an accumulated deficit of $231.1 million and $245.6 million, respectively. The Company has historically financed its operations primarily through the issuance and sale of convertible preferred stock and Historical common stock and the issuance of debt. Management expects to continue to incur significant expenses for the foreseeable future and to incur operating losses in the near term while the Company makes investments to support its anticipated growth. While management believes that the Company's existing cash and cash equivalents, cash generated from sales of its products and available borrowing capacity under existing credit agreements will be sufficient to meet its anticipated cash needs for the next 12 months from the date these financial statements are issued, the Company may need to raise additional financing in the future to fund its operations. The Company has evaluated and concluded there are no conditions or events, considered in the aggregate, that raise substantial doubt about its ability to continue as a going concern for a period of one year following the date that these financial statements were issued. The accompanying financial statements have been prepared assuming the Company will continue as a going concern.

Basis of Presentation

The consolidated financial statements include the Company's accounts and the accounts of its wholly-owned subsidiaries. All intercompany transactions and balances have been eliminated. The consolidated financial statements have been prepared in conformity with U.S. generally accepted accounting principles (or "GAAP"). The Company has issued shares of Class A common stock herein referred to as "Historical Class A common stock" or "Historical Class A" and Class B common stock herein referred to as "Historical Class B common stock" or "Historical Class B", and collectively as "Historical common stock".

2. Summary of Significant Accounting Policies

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make judgments, estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the financial statements, disclosure of contingent assets and liabilities and the reported amounts of revenue and expense. These judgments, estimates and assumptions are used for, but not limited to, revenue recognition, inventory valuation and write-downs, loss contingencies, accounting for asset acquisitions and the fair value of common stock and stock option awards. The Company bases its estimates on various factors and information, which may include, but are not limited to, history and prior experience, the Company's forecasts

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

and future plans, current economic conditions and information from third-party professionals that management believes to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying value of assets and liabilities and recorded amounts of expenses that are not readily apparent from other sources. Actual results may differ from those estimates and the differences may be material.

Reclassifications

Certain prior year amounts have been reclassified in the consolidated balance sheets and consolidated statements of cash flows to conform to the current year presentation. These reclassifications from prepaid expenses and other current assets to tenant allowance receivable and from other noncurrent liabilities to deferred rent, noncurrent had no impact on total assets, total liabilities or net cash provided by (used in) operating activities.

Unaudited Pro Forma Information

Unaudited Pro Forma Balance Sheet

The unaudited pro forma balance sheet information as of June 30, 2019, assumes all shares of convertible preferred stock had automatically converted into an aggregate of 67,704,278 shares of the Company's Historical Class A common stock upon the completion of a qualifying initial public offering ("IPO"). The shares of Historical common stock issuable and the proceeds expected to be received upon the completion of a qualifying IPO are excluded from such pro forma financial information.

Unaudited Pro Forma Net Loss Per Share

Unaudited pro forma basic and diluted net loss per share attributable to Historical common stockholders is computed, using the if-converted method, to give effect to the automatic conversion of all outstanding shares of the Company's convertible preferred stock into 67,704,278 shares of Historical Class A common stock.

Unaudited Interim Financial Information

The accompanying interim consolidated balance sheet as of June 30, 2019, the interim consolidated statements of operations and comprehensive loss, cash flows, convertible preferred stock and stockholders' equity (deficit) for the six months ended June 30, 2018 and 2019 and the related footnote disclosures are unaudited. The unaudited interim consolidated financial statements have been prepared on the same basis as the annual consolidated financial statements and include, in the opinion of management, all adjustments, consisting of normal recurring adjustments, that are necessary for the fair presentation of the Company's financial position as of June 30, 2019 and results of operations and cash flows for the six months ended June 30, 2018 and 2019. The results as of and for the six months ended June 30, 2019 are not necessarily indicative of the results to be expected for the year ending December 31, 2019 or for any other future periods.

Cash Equivalents and Restricted Cash

The Company considers all highly liquid investments with an original maturity of three months or less from the date of purchase to be cash equivalents. Cash equivalents consist primarily of amounts invested in money market funds and are stated at fair value.

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported on the consolidated balance sheets that sum to the total of the same amounts shown in the consolidated statements of cash flows (in thousands):

	December 31,		June 30,
	2017	2018	2019
			(unaudited)
Cash and cash equivalents	$47,857	$65,080	$56,034
Restricted cash	–	5,008	5,008
Total cash, cash equivalents, and restricted cash	$47,857	$70,088	$61,042

Segment Information

The Company operates as a single operating segment. The Company's chief operating decision maker, its Chief Executive Officer, manages the Company's operations on a consolidated basis for the purposes of allocating resources, making operating decisions and evaluating financial performance.

Fair Value of Financial Instruments

The Company determines the fair value of an asset or liability based on the assumptions that market participants would use in pricing the asset or liability in an orderly transaction between market participants at the measurement date. The identification of market participant assumptions provides a basis for determining what inputs are to be used for pricing each asset or liability.

A fair value hierarchy has been established which gives precedence to fair value measurements calculated using observable inputs over those using unobservable inputs. This hierarchy prioritized the inputs into three broad levels as follows:

Level 1: Quoted prices in active markets for identical instruments;

Level 2: Other significant observable inputs (including quoted prices in active markets for similar instruments); and

Level 3: Significant unobservable inputs (including assumptions in determining the fair value of certain investments).

Money market funds are highly liquid investments and are actively traded. The pricing information on the Company's money market funds are readily available and can be independently validated as of the measurement date. This approach results in the classification of these securities as Level 1 of the fair value hierarchy. There were no transfers between Levels 1, 2 or 3 for any of the periods presented. As of December 31, 2017 and 2018 and June 30, 2019 (unaudited), the Company held $43.3 million, $44.5 million and $33.4 million, respectively, in money market funds with no unrealized gains or losses.

The Company has issued common stock warrants for which fair value is determined using Level 3 inputs, see discussion in Note 8.

Accounts Receivable, Net

Accounts receivable consist of amounts due from customers for the sales of products and services. The Company reviews its accounts receivable and provides allowances of specific amounts if collectability is no

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

longer reasonably assured based on historical experience and specific customer collection issues. The allowance for doubtful accounts was $0.3 million as of December 31, 2018 and $0.4 million as of June 30, 2019 (unaudited). There was no allowance for doubtful accounts as of December 31, 2017.

Business Concentrations

The Company's instruments are currently assembled and tested by a single contract manufacturer in the United States. The Company's agreement with the contract manufacturer expires in 2020 and may be terminated by either party for any reason by providing the other party with at least 30 days written notice. The Company's agreement with the contract manufacturer contains purchase commitments. In addition, the Company is reliant on several suppliers for key components for its consumables. A significant disruption in the operations of the contract manufacturer or suppliers may impact the production of the Company's products for a substantial period of time, which could have a material adverse effect on its business, financial condition and results of operations.

Concentrations

Financial instruments that potentially subject the Company to credit risk consist of cash equivalents and accounts receivable. The Company's cash and cash equivalents are primarily held with a large financial institution in the U.S. and deposits exceed the Federal Deposit Insurance Corporation's insurance limit. The Company's debt is with this same financial institution. The Company performs periodic evaluations of the risks associated with its investments and the relative credit standing of this financial institution.

The Company performs ongoing credit evaluations of its customers' financial condition. The Company does not require collateral from its customers but may require upfront payments from certain customers. The Company has not experienced significant credit losses to date. For the years ended December 31, 2017 and 2018 and the six months ended June 30, 2018 and 2019 (unaudited), no single customer, including distributors, represented more than 10% of revenue. As of December 31, 2017 and 2018 and June 30, 2019 (unaudited), no single customer, including distributors, represented more than 10% of the Company's outstanding accounts receivable.

Substantially all of the Company's long-lived assets are located in the United States.

Inventory

Inventory is recorded at the lower of cost, determined on a first-in, first-out basis, or net realizable value. The Company uses judgment to analyze and determine if the composition of its inventory is obsolete, slow-moving or unsalable and frequently reviews such determinations. The Company writes down specifically identified unusable, obsolete, slow-moving or known unsalable inventory in the period that it is first recognized by using a number of factors including product expiration dates, open and unfulfilled orders and sales forecasts. Any write-down of its inventory to net realizable value establishes a new cost basis and will be maintained even if certain circumstances suggest that the inventory is recoverable in subsequent periods. Costs associated with the write-down of inventory are recorded to cost of revenue on the Company's consolidated statements of operations

Property and Equipment, Net

Property and equipment, net is stated at cost, net of accumulated depreciation. Depreciation is computed using the straight-line method based on the estimated useful lives of the assets. Assets held under capital leases are recorded at the lower of the net present value of the minimum lease payments or the fair value of

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

the leased assets at the inception of the lease. Amortization expense is computed using the straight-line method over the shorter of the estimated useful lives of the leased assets or the period of the related lease. Amortization of assets under capital leases is included in depreciation expense. The estimated useful lives of the Company's property and equipment are as follows:

	Useful Life
Laboratory equipment and machinery	3 – 5 years
Computer equipment	2 – 3 years
Furniture and fixtures	3 years
Leasehold improvements	1 – 3 years

Impairment of Long-Lived Assets

The Company evaluates long-lived assets, such as property and equipment and intangible assets, for impairment whenever events or changes in circumstances indicate that the carrying value of an asset may not be recoverable. If indicators of impairment exist and the undiscounted future cash flows that the assets are expected to generate are less than the carrying value of the assets, the Company reduces the carrying amount of the assets to their estimated fair values based on a discounted cash flow approach or, when available and appropriate, to comparable market values. There were no impairment losses recorded for the years ended December 31, 2017 and 2018 and the six months ended June 30, 2018 and 2019 (unaudited).

Product Warranties

The Company generally provides a one-year warranty on its instruments. The Company reviews its exposure to estimated warranty obligations associated with instrument sales and establishes an accrual based on historical product failure rates and actual warranty costs incurred. This expense is recorded as a component of cost of revenue in the consolidated statements of operations and comprehensive loss.

Deferred Revenue

Deferred revenue consists of payments received in advance of revenue recognition primarily related to instrument service agreements, also referred to as extended warranties. Revenue under these agreements is recognized over the related service period. Deferred revenue that will be recognized during the 12 months following the balance sheet date is recorded as current portion of deferred revenue and the remaining portion is recorded as long term.

Accrued Contingent Liabilities

Accrued contingent liabilities represents the Company's estimates of possible losses on pending litigations, including related accrued royalties that are both probable and reasonably estimable. See Note 7.

Revenue Recognition

The Company generates revenue from sales of products and services. The Company's products consist of instruments and consumables. The Company also sells instrument service agreements which relate to extended warranties.

The revenue recognition accounting policy described below relates to revenue transactions from January 1, 2019 and onward, which are accounted for in accordance with Accounting Standards Codification Topic 606 – Revenue from Contracts with Customers.

The Company recognizes revenue when control of the products and services is transferred to its customers in an amount that reflects the consideration it expects to receive from its customers in exchange for those

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products and services. This process involves identifying the contract with a customer, determining the performance obligations in the contract, determining the contract price, allocating the contract price to the distinct performance obligations in the contract, and recognizing revenue when the performance obligations have been satisfied. A performance obligation is considered distinct from other obligations in a contract when it provides a benefit to the customer either on its own or together with other resources that are readily available to the customer and is separately identified in the contract. The Company considers a performance obligation satisfied once it has transferred control of a good or service to the customer, meaning the customer has the ability to use and obtain the benefit of the good or service.

Revenue from product sales is recognized when control of the product is transferred, which is generally upon shipment to the customer. In instances where right of payment or transfer of title is contingent upon the customer's acceptance of the product, revenue is deferred until all acceptance criteria have been met. Instrument service agreements, which relate to extended warranties, are typically entered into for one-year terms, following the expiration of the standard one-year warranty period Revenue for extended warranties is recognized ratably over the term of the extended warranty period as a stand ready performance obligation. Revenue is recorded net of discounts, distributor commissions, and sales taxes collected on behalf of governmental authorities. Customers are invoiced generally upon shipment, or upon order for services, and payment is typically due within 45 days. Cash received from customers in advance of product shipment or providing services is recorded as a contract liability. The Company's contracts with its customer generally do not include rights of return or a significant financing component.

The Company regularly enters into contracts that include various combinations of products and services which are generally distinct and accounted for as separate performance obligations. The transaction price is allocated to each performance obligation in proportion to its standalone selling price. The Company determines standalone selling price using average selling prices with consideration of current market conditions. If the product or service has no history of sales or if the sales volume is not sufficient, the Company relies upon prices set by management, adjusted for applicable discounts.

The revenue recognition accounting policy described below relates to revenue transactions prior to January 1, 2019, which are accounted for in accordance with Accounting Standards Codification Topic 605 – Revenue Recognition.

The Company recognizes revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price to the customer is fixed or determinable, and collectability is reasonably assured. The Company assesses collectability based on factors such as the customer's creditworthiness and past collection history, if applicable. If collection is not reasonably assured, revenue recognition is deferred until receipt of payment. The Company also assesses whether a price is fixed or determinable by, among other things, reviewing contractual terms and conditions related to payment. Delivery occurs when there is a transfer of title and risk of loss passes to the customer.

Certain of the Company's sales arrangements involve the delivery of multiple products and services within contractually binding arrangements. Multiple-deliverable sales transactions typically consist of the sale and delivery of one or more instruments and consumables together and may include an instrument service agreement.

For sales arrangements that include multiple deliverables, the Company uses the stated contractual price for its instrument service agreements as its best estimate of selling price, if and when sold, and allocates the remaining contract consideration at the inception of the contract to the other units of accounting based upon

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their relative selling price. The Company may use its best estimate of selling price for individual deliverables when vendor specific objective evidence or third-party evidence is unavailable. A delivered item is considered to be a separate unit of accounting when it has value to the customer on a stand-alone basis.

The Company's products are typically delivered together or within a short time frame, generally within one to three months of the contract date. Instrument service agreements, which relate to extended warranties, are typically entered into for one-year terms, following the expiration of the standard one-year warranty period. The Company's products are generally sold without the right of return. Amounts received before revenue recognition criteria are met are classified on the consolidated balance sheets as deferred revenue.

Contract Costs

Beginning January 1, 2019, sales commissions earned by the Company's sales force are considered incremental and recoverable costs of obtaining a contract with a customer. Sale commissions related to the sale of extended warranties are deferred and amortized on a straight-line basis over the service term, which is typically greater than one year from the contract date. Amortization of deferred commissions is included in sales and marketing expenses in the accompanying consolidated statements of operations and comprehensive loss. As of June 30, 2019, unamortized deferred commissions were immaterial.

Cost of Revenue

Costs of revenue primarily consist of manufacturing costs incurred in the production process, including personnel and related costs, component materials, labor and overhead, packaging and delivery costs and allocated costs including facilities and information technology. In addition, costs of product revenue includes royalty costs for licensed technologies included in the Company's products, warranty costs and provisions for slow-moving and obsolete inventory. In addition, cost of revenue includes estimated accrued royalties related to the Bio-Rad litigation. See Note 7.

Shipping and Handling Costs

Shipping and handling charged to customers are recorded as revenue. Shipping and handling costs are included in the Company's cost of revenue.

Research and Development

Research and development costs are expensed in the period incurred. Research and development expense consists of personnel and related costs, independent contractor costs, laboratory supplies, equipment maintenance, prototype and materials expenses, amortization of developed technology and intangibles and allocated costs including facilities and information technology.

See Note 3 for discussion of in-process research and development included on the consolidated statements of operations.

Advertising Costs

Advertising costs are expensed as incurred. The Company incurred advertising costs of $0.2 million and $0.7 million for the years ended December 31, 2017 and 2018, respectively, and $0.2 million and $0.4 million for the six months ended June 30, 2018 and 2019 (unaudited), respectively.

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Stock-Based Compensation

The Company estimates the fair value of share-based payment awards granted to employees and directors on the grant date using the Black-Scholes option-pricing model. The fair value of share-based payment awards is recognized as compensation expense on a straight-line basis over the requisite service period in which the awards are expected to vest and forfeitures are recognized as they occur. Share-based payment awards that include a service condition and a performance condition are considered expected to vest when the performance condition is probable of being met.

The Black-Scholes model considers several variables and assumptions in estimating the fair value of stock-based awards. These variables include the per share fair value of the underlying Historical common stock, exercise price, expected term, risk-free interest rate, expected annual dividend yield and the expected stock price volatility over the expected term. For all stock options granted, the Company calculated the expected term using the simplified method for “plain vanilla” stock option awards. The Company has no publicly available stock information and therefore, the Company has used the historical volatility of the stock price of similar publicly traded peer companies. The risk-free interest rate is based on the yield available on U.S. Treasury zero-coupon issues similar in duration to the expected term of the equity-settled award.

Stock-based compensation expense for nonemployee stock options is measured based on fair market value using the Black-Scholes option pricing model and is recorded as the options vest. Prior to January 1, 2019, nonemployee stock options subject to vesting were revalued periodically over the requisite service period, which was generally the same as the vesting term of the award. From January 1, 2019, the grant date fair market value of nonemployee stock options is recognized in the consolidated statements of operations on a straight-line basis over the requisite service period and forfeitures are recognized as they occur.

Foreign Currency

For foreign subsidiaries where the functional currency is the local currency, assets and liabilities are translated to the U.S. dollar using month-end exchange rates, and revenue and expenses using average exchange rates. The adjustments resulting from these foreign currency translations are recorded in accumulated other comprehensive loss.

For foreign subsidiaries where the functional currency is the U.S. dollar, monetary assets and liabilities are remeasured using exchange rates in effect at the balance sheet dates and non-monetary assets and liabilities are remeasured at historical exchange rates. Revenue and expenses are remeasured at the average exchange rates for the period. Gains or losses from foreign currency remeasurement are included in other income (expense), net in the consolidated statements of operations and comprehensive loss. The Company recognized foreign currency transaction gains of $0.1 million for the year ended December 31, 2017, foreign currency transaction losses of $0.3 million for the year ended December 31, 2018, and foreign currency transaction losses of $0.1 million and $0.1 million for the six months ended June 30, 2018 and 2019 (unaudited), respectively.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes, in which deferred tax assets and liabilities are recognized for the future tax consequences attributable to the differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using the enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be reversed. The effect on deferred tax assets and liabilities of a change in tax rates is recognized as income in the period that includes the enactment date. A valuation allowance is established if it is more likely than not that all or a portion of the deferred tax asset will not be realized.

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The Company's tax positions are subject to income tax audits. The Company recognizes the tax benefit of an uncertain tax position only if it is more likely than not that the position is sustainable upon examination by the taxing authority, based on the technical merits. The tax benefit recognized is measured as the largest amount of benefit which is more likely than not (greater than 50% likely) to be realized upon settlement with the taxing authority. The Company recognizes interest accrued and penalties related to unrecognized tax benefits in its tax provision.

The Company calculates the current and deferred income tax provision based on estimates and assumptions that could differ from the actual results reflected in income tax returns filed in subsequent years. Adjustments based on filed income tax returns are recorded when identified. The amount of income tax paid is subject to examination by U.S. federal and state tax authorities. The estimate of the potential outcome of any uncertain tax issue is subject to management's assessment of the relevant risks, facts and circumstances existing at that time. To the extent the assessment of such tax position changes, the change in estimate is recorded in the period in which the determination is made.

Net Loss Per Share Attributable to Common Stockholders

Net loss per share of Historical common stock is computed using the two-class method required for multiple classes of common stock and participating securities. The rights, including the liquidation and dividend rights and sharing of losses, of the Historical Class A common stock and Historical Class B common stock are identical, other than voting rights. As the liquidation and dividend rights and sharing of losses are identical, the undistributed earnings are allocated on a proportionate basis and the resulting net loss per share attributed to common stockholders will, therefore, be the same for both Historical Class A and Historical Class B common stock on an individual or combined basis.

The Company's participating securities include the Company's convertible preferred stock, as the holders are entitled to receive noncumulative dividends on a pari passu basis in the event that a dividend is paid on Historical common stock. The Company also considers any shares issued on the early exercise of stock options subject to repurchase to be participating securities because holders of such shares have non-forfeitable dividend rights in the event a dividend is paid on Historical common stock. The holders of convertible preferred stock, as well as the holders of early exercised shares subject to repurchase, do not have a contractual obligation to share in losses.

Basic net loss per share is computed by dividing net loss attributable to Historical common stockholders by the weighted-average number of shares of Historical common stock outstanding during the period, adjusted for outstanding shares that are subject to repurchase.

For the calculation of diluted net loss per share, basic net loss per share attributable to Historical common stockholders is adjusted by the effect of dilutive securities, including convertible preferred stock, awards under the Company's equity compensation plan and common stock warrants. Diluted net loss per share attributable to Historical common stockholders is computed by dividing net loss attributable to Historical common stockholders by the weighted-average number of shares of Historical common stock outstanding. For periods in which the Company reports net losses, diluted net loss per share attributable to Historical common stockholders is the same as basic net loss per share attributable to Historical common stockholders because potentially dilutive shares of Historical common stock are not assumed to have been issued if their effect is anti-dilutive.

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Acquisitions of Assets

The Company evaluates acquisitions of assets and other similar transactions to assess whether or not the transaction should be accounted for as a business combination or asset acquisition by first applying a screen to determine if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets. If the screen is met the transaction is accounted for as an asset acquisition. If the screen is not met, further determination is required as to whether or not the Company has acquired inputs and processes that have the ability to create outputs which would meet the requirements of a business.

The Company accounts for an asset acquisition under Accounting Standards Codification ("ASC"), *Business Combinations Topic 805, Subtopic 50*, which requires the acquiring entity in an asset acquisition to recognize net assets based on the cost to the acquiring entity on a relative fair value basis, which includes transaction costs in addition to consideration given. Goodwill is not recognized in an asset acquisition; any excess consideration transferred over the fair value of the net assets acquired is allocated to the non-monetary identifiable assets based on relative fair values. In-process research and development expense is expensed as incurred provided there is no alternative future use.

Contingent consideration payments in asset acquisitions are recognized when the contingency is resolved and the consideration is paid or becomes payable (unless the contingent consideration meets the definition of a derivative, in which case the amount becomes part of the basis in the asset acquired). Upon recognition of the contingent consideration payment, the amount is included in the cost of the acquired asset or group of assets.

Recently Adopted Accounting Pronouncements

In January 2017, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2017-01, *Business Combinations (Topic 805): Clarifying the Definition of a Business*. This standard provides guidance to evaluate whether transactions should be accounted for as acquisitions (or disposals) of assets or businesses. If substantially all of the fair value of the gross assets acquired (or disposed of) is concentrated in a single asset or a group of similar assets, the assets acquired (or disposed of) are not considered a business. The Company early adopted the standard as of January 1, 2018 on a prospective basis. As such, the Company applied this standard to its transactions beginning January 1, 2018.

In March 2016, the FASB issued ASU No. 2016-09, *Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting*. This standard relates to the simplification of share-based payments accounting and requires companies to record excess tax benefits and tax deficiencies as an income tax benefit or expense in the consolidated statements of operations and comprehensive loss when the awards vest or are settled, eliminates the requirement to reclassify cash flows related to excess tax benefits from operating activities to financing activities on the consolidated statements of cash flows and provides the option to recognize gross share-based compensation expense with actual forfeitures recognized as they occur. This standard is effective for annual periods beginning after December 15, 2017. The Company adopted this standard as of January 1, 2018 on a prospective basis and elected to account for forfeitures as they occur, rather than estimate expected forfeitures. The adoption of this standard did not have a material impact on the Company's consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18, *Statement of Cash Flows, Restricted Cash (Topic 230)*. This standard requires entities to show the changes in total of cash, cash equivalents, restricted cash, and restricted cash equivalents in their statement of cash flows. As a result, entities will no longer present transfers between cash and cash equivalents and restricted cash and restricted cash equivalents in the statement of cash

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flows. This standard is effective for annual periods beginning after December 15, 2018, is applied retrospectively, and early adoption is permitted. The Company early adopted this standard as of January 1, 2018, which did not have an impact on its consolidated financial statements for the year ended December 31, 2017.

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)*, which supersedes the revenue recognition requirements in ASC 605, *Revenue Recognition*. This standard is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. The standard also requires additional disclosure about the nature, amount, timing and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments and changes in judgments and assets recognized from costs incurred to obtain or fulfill a contract. The Company adopted this standard as of January 1, 2019 using the modified retrospective approach, which did not have a material impact on its consolidated financial statements as of the adoption date and for the six months ended June 30, 2019. See *Revenue Recognition* for further details of the Company's revenue recognition policy under this standard.

In June 2018, the FASB issued ASU 2018-07, *Compensation-Stock Compensation (Topic 718): Improvements to Nonemployee Share-Based Payment Accounting*. This standard expands the scope of Topic 718, *Compensation—Stock Compensation* (which currently only includes share-based payments to employees) to include share-based payments issued to nonemployees for goods or services. Consequently, the accounting for share-based payments to nonemployees and employees will be substantially aligned. This standard is effective for annual periods beginning after December 15, 2019. The Company early adopted this standard on January 1, 2019 which did not have a material impact on the Company's consolidated financial statements.

Recently Issued Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02*, Leases (Topic 842)*, which supersedes the guidance in former ASC 840, *Leases*. This standard requires lessees to apply a dual approach, classifying leases as either finance or operating leases based on the principle of whether or not the lease is effectively a financed purchase by the lessee. The classification will determine whether lease expense is recognized based on an effective interest method or on a straight-line basis over the term of the lease. A lessee is also required to record a right-of-use asset and a lease liability for all leases with a term of greater than 12 months regardless of their classification. Leases with a term of 12 months or less will be accounted for similar to existing guidance for operating leases. This standard is effective for interim and annual periods beginning after December 15, 2019, with early adoption permitted. The Company is currently evaluating adoption methods and whether this standard will have a material impact on its consolidated financial statements.

In October 2016, the FASB issued ASU No. 2016-16, *Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory.* This standard will require entities to recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs instead of when the asset is sold. This standard is effective for annual periods beginning after December 15, 2018. The Company is currently assessing the impact of this standard to the consolidated financial statements but does not anticipate a material impact on the adoption due to the valuation allowance.

In August 2018, the FASB issued ASU 2018-15, *Intangibles – Goodwill and Other – Internal Use Software (Subtopic 350-40) – Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract*, which aligns the accounting for implementation costs incurred in a hosting arrangement that is a service contract with the accounting for implementation costs incurred to develop or

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obtain internal-use software under ASC 350-40, in order to determine which costs to capitalize and recognize as an asset and which costs to expense. This standard is effective for annual periods beginning after December 15, 2020, and interim periods within annual periods beginning after December 15, 2021. Early adoption is permitted, including adoption in any interim period. This standard can be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company is currently evaluating the impact of adopting this standard on its consolidated financial statements.

3. Asset Acquisitions

In March 2018, the Company acquired all of the outstanding shares of Epinomics, Inc. for $22.2 million inclusive of acquisition costs of $0.3 million. The technology licenses acquired in this transaction will enable the Company to develop epigenetics products. The transaction was accounted for as an asset acquisition. The Company recognized a charge of $22.2 million related to the transaction which is included as a component of in-process research and development on the consolidated statements of operations and comprehensive loss.

In November 2018, the Company purchased all of the outstanding shares of Spatial Transcriptomics Holdings AB (“Spatial”), for $38.6 million inclusive of acquisition costs of $0.5 million. The patents acquired in this transaction will enable the Company to develop spatial products. The transaction was accounted for as an asset acquisition. In connection with this acquisition, the Company acquired patents, trademarks and customer relationships. The patents acquired were allocated a value of $36.9 million. Accordingly, the Company recognized a charge of $36.9 million related to the transaction which is included as a component of in-process research and development on the consolidated statements of operations and comprehensive loss. The Company recognized a total of $0.4 million in intangible assets related to acquired trademarks and customer relationships which are included in other assets on the consolidated balance sheets. The Company must also make contingent payments to the sellers of Spatial based on revenue from certain spatial-related technology sales for the years ended December 31, 2019 through December 31, 2022, which are subject to continuing service requirements. These contingent payments are equal to a percentage in the teens multiplied by such revenue. Due to continuing service requirements pertaining to earn the contingent payments, the contingent payments have been deemed to be a compensation arrangement which will be accounted for if and when earned.

The following table summarizes the value of assets acquired and liabilities assumed (in thousands):

Assets Acquired and Liabilities Assumed	
In-process research and development	$36,899
Intangible assets	425
Other assets and liabilities, net	1,237
Total net assets acquired	$38,561

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4. Other Financial Statement Information

Inventory

Inventory was comprised of the following as of the dates indicated (in thousands):

	December 31, 2017	December 31, 2018	June 30, 2019 (unaudited)
Purchased materials	$1,618	$3,052	$ 3,807
Work in progress	1,895	2,553	3,982
Finished goods	1,325	2,965	4,536
Inventory	$4,838	$8,570	$12,325

Property and Equipment, Net

Property and equipment, net consisted of the following as of the dates indicated (in thousands):

	December 31, 2017	December 31, 2018	June 30, 2019 (unaudited)
Laboratory equipment and machinery	$ 11,634	$ 14,616	$ 16,315
Computer equipment	2,472	3,303	3,562
Furniture and fixtures	947	1,002	3,430
Leasehold improvements	2,291	3,342	14,342
Construction in progress	614	2,947	15,180
Total property and equipment	17,958	25,210	52,829
Less: accumulated depreciation and amortization	(11,033)	(14,083)	(14,492)
Property and equipment, net	$ 6,925	$ 11,127	$ 38,337

Depreciation expense was $4.3 million and $3.8 million for the years ended December 31, 2017 and 2018, respectively, and $2.1 million and $2.1 million for the six months ended June 30, 2018 and 2019 (unaudited), respectively. Included in property and equipment were capital leases of $1.7 million as of December 31, 2017, and accumulated depreciation related to the capital leases of $1.6 million as of December 31, 2017. There were no capital leases as of December 31, 2018 and June 30, 2019 (unaudited). Depreciation expense related to capital leases was $0.6 million and $0.1 million for the years ended December 31, 2017 and 2018, respectively and $0.1 million for the six months ended June 30, 2018 (unaudited). No depreciation expense related to capital leases was recognized related in the six months ended June 30, 2019 (unaudited).

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Accrued Compensation and Related Benefits

Accrued compensation and related benefits was comprised of the following as of the dates indicated (in thousands):

	December 31, 2017	December 31, 2018	June 30, 2019 (unaudited)
Accrued bonus	$2,216	$3,545	$2,992
Accrued commissions	1,903	2,299	1,390
Other	358	1,203	2,017
Accrued compensation and related benefits	$4,477	$7,047	$6,399

Accrued Expenses and Other Current Liabilities

Accrued expenses and other current liabilities was comprised of the following as of the dates indicated (in thousands):

	December 31, 2017	December 31, 2018	June 30, 2019 (unaudited)
Accrued royalties for licensed technologies	$1,099	$1,571	$ 1,887
Accrued property and equipment	–	990	7,227
Accrued consulting	160	741	979
Accrued offering costs	–	–	701
Product warranties	174	804	447
Customer deposits	715	381	479
Taxes payable	163	738	797
Other	1,351	2,947	3,917
Accrued expenses and other current liabilities	$3,662	$8,172	$16,434

Product Warranties

Changes in the reserve for product warranties were as follows for the periods indicated (in thousands):

	December 31, 2017	December 31, 2018	June 30, 2019 (unaudited)
Beginning of period	$ 35	$ 174	$ 804
Additions charged to cost of revenue	476	1,685	201
Repairs and replacements	(337)	(1,055)	(558)
End of period	$ 174	$ 804	$ 447

Revenue and Deferred Revenue

As of June 30, 2019, the aggregate amount of the transaction price allocated to remaining performance obligations was $3.9 million, of which approximately 71% is expected to be recognized to revenue in the next twelve months, with the remainder thereafter.

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As of June 30, 2019, contract liabilities, which consisted of deferred revenue related to extended warranty service agreements' were $3.9 million, of which the short-term portions were $2.8 million. Revenue recorded during the six months ended June 30, 2019 included $1.4 million of previously deferred revenue that was included in contract liabilities as of the adoption date of January 1, 2019. Contract assets as of the adoption date of January 1, 2019 and June 30, 2019 were immaterial.

The following table presents revenue by source for the periods indicated (in thousands):

	Year Ended December 31,		Six Months Ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Instruments	$24,467	$ 36,540	$15,864	$ 15,150
Consumables	46,192	107,616	42,482	92,389
Services	426	2,157	806	1,858
Total revenue	$71,085	$146,313	$59,152	$109,397

The following table presents revenue by geography based on the location of the customer for the periods indicated (in thousands):

	Year Ended December 31,		Six Months Ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
North America	$43,622	$ 85,132	$35,541	$ 61,455
Europe, the Middle East and Africa	18,602	35,812	13,725	24,498
China	3,171	15,075	5,462	15,407
Asia Pacific	5,690	10,294	4,424	8,037
Total revenue	$71,085	$146,313	$59,152	$109,397

Revenue for the United States, which is included in North America in the table above, was 58% and 55% of consolidated revenue for the years ended December 31, 2017 and 2018, respectively, and 56% and 53% of consolidated revenue for the six months ended June 30, 2018 and 2019 (unaudited), respectively.

5. Debt

In September 2016, the Company entered into a loan and security agreement which includes a term loan and revolving line of credit facility. The Company initially borrowed $10.6 million as a term loan, known as Tranche A, which was originally scheduled to mature in June 2020. Monthly payments of interest were due through December 31, 2017, with equal monthly installments of principal and interest due for thirty months thereafter. The term loan accrued interest at a floating per annum rate equal to *The Wall Street Journal* prime rate plus 2.0%. The Company had an option to borrow an additional $10.0 million as a term loan, known as Tranche B, beginning July 1, 2017, which expired with no amounts borrowed as of December 31, 2017. Additionally, no amounts were borrowed under the revolving line of credit. The agreement required an end of term payment of $0.6 million upon maturity of Tranche A.

In February 2018, the loan and security agreement was amended. Under the terms of the amendment, amounts available under Tranche A were increased to $30.0 million (the "Amended Tranche A"). As of the date of modification, the balance outstanding under Tranche A was $10.5 million. After giving consideration to the

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end of term payment, the Company borrowed an additional $19.5 million under the Amended Tranche A. Under the amended agreement the Company has an option to borrow an additional $20.0 million as a term loan, known as the Amended Tranche B, beginning October 1, 2018 through June 30, 2019, or the date of an event of default if earlier, and the revolving line of credit facility was increased from $5.0 million to $25.0 million.

Monthly payments of interest are due under the Amended Tranche A term loan through June 30, 2019, with monthly installments of principal and interest due for 42 months thereafter. However, if the Amended Tranche B is borrowed, monthly installments of principal and interest will be reduced to 36 months. The term loan accrues interest at the greater of the floating per annum rate equal to the greater of *The Wall Street Journal* prime rate plus 2.0% or 6.25%. Additionally, an end of term payment is due to the lender in the amount of $1.8 million upon maturity, prepayment, or acceleration of the term loan, as amended. The end of term payment is being accreted as additional interest expense over the term of the debt using the effective interest method.

The term loan can be repaid prior to the maturity date, however, a prepayment fee of 3.0% of the outstanding principal balance will be due in addition to all outstanding principal and interest, if the prepayment is made before the first anniversary date of the loan closing date. This prepayment fee decreases to 2.0% if the prepayment is made on or after the first anniversary of the loan closing date but before the second anniversary of the loan closing date and the fee decreases to 1.0% of the outstanding principal amount if paid after the second anniversary and prior to the maturity date.

The loan and security agreement provides the Company with a revolving line of credit of up to $25.0 million through December 2022. The amount available on the revolving line of credit is based on 80% of eligible receivables and is subject to a borrowing base calculation. Principal amounts outstanding under the revolving line of credit accrue interest at the greater of a floating per annum rate equal to the greater of *The Wall Street Journal* prime rate plus 0.25% or 4.5% and are repayable monthly. Upon termination of the agreement for any reason prior to the revolving credit facility's maturity date, a termination fee of $250,000 will be due in addition to all outstanding principal and interest. Additionally, the revolving line of credit has a nonrefundable annual commitment fee of $62,500 payable on each anniversary date.

In connection with the amendment of the loan and security agreement and the Amended Tranche A term loan entered into in February 2018, the Company issued the lender a warrant to purchase 125,000 Historical Class B common shares with an exercise price per share of $1.62. If the Company borrows under the Amended Tranche B term loan, the Company is obligated to issue the lender a warrant to purchase an additional 133,000 Historical Class B common shares with an exercise price per share of $1.62. The warrants had an estimated fair value of $150,000 which has been recorded as a debt discount.

Amounts borrowed under the loan and security agreement are collateralized by all of the Company's assets, except for intellectual property, but including the proceeds from the sale of any of the Company's intellectual property. In addition, the Company has provided a negative pledge regarding its intellectual property and cannot encumber it without the lender's consent. The loan and security agreement contains various covenants for reporting, protecting and obtaining adequate insurance coverage for assets collateralized and for coverage of business operations, and complying with requirements, including the payment of all necessary taxes and fees for all federal, state and local government entities. Immediately upon the occurrence and during the continuance of an event of default, including the noncompliance with the above covenants, the lender may increase the interest rate per annum by 5.0% above the rate that is otherwise applicable; stop future loan advances; require the Company to deposit 105% of any undrawn letters of credit, or 110% if the letter of credit is denominated in a foreign currency; and take control over all assets collateralizing the loan and

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Notes to Consolidated Financial Statements—(Continued)

take necessary means to protect the collateral. The loan and security agreement contains a material adverse change clause, including terms for subjective acceleration.

As of December 31, 2018 and June 30, 2019 (unaudited), and as of the date of the issuance of these financial statements, the Company was in compliance with all loan covenants.

In June 2019, the Company's loan and security agreement was amended to extend the Company's option to borrow an additional $20.0 million as a term loan (the "Amended Tranche B") through December 31, 2019. Monthly payments of interest are due through December 31, 2019, with monthly installments of principal and interest due for 36 months thereafter. In connection with the amendment, the Company paid a one-time fee of $50,000 to the lender. As a result, annual payments due on the term loan decreased by approximately $4.2 million in 2019 and increased by $1.7 million, $1.6 million and $1.5 million in 2020, 2021 and 2022, respectively.

Aggregate annual payments due on the term loan as of December 31, 2018, are as follows (in thousands):

2019	$ 6,495
2020	10,233
2021	9,576
2022	10,724
Total payments	37,028
Less: amount representing interest	(7,028)
Total term loan	30,000
Less: unamortized debt discount	(324)
Total term loan, net of debt discount	29,676
Less: current portion	(4,187)
Non-current portion	$25,489

6. Income Taxes

Loss before provision for income taxes were as follows for the periods indicated (in thousands):

	Year Ended December 31,	
	2017	2018
United States	$(17,275)	$ (77,517)
International	(1,466)	(34,881)
Total	$(18,741)	$(112,398)

The provision for income taxes was $0.1 million for the year ended December 31, 2018, which related to foreign and state income taxes. For the year ended December 31, 2017, the provision for income taxes was not material.

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A reconciliation of the federal statutory income tax provision to the effective income tax provision is as follows for the periods indicated (in thousands):

	Year Ended December 31,	
	2017	2018
Income tax provision at statutory rate	$ (6,372)	$(23,604)
State taxes, net	(1,180)	(4,479)
Tax credits	(1,213)	(1,631)
Foreign taxes	565	41
Stock-based compensation	481	421
Change in valuation allowance	(5,230)	19,133
Change in federal rate	12,912	–
Acquisition related expenses	–	10,143
Other	58	63
Total provision for income taxes	$ 21	$ 87

Deferred income taxes reflect the net tax effect of temporary differences between amounts recorded for financial reporting purposes and amounts used for tax purposes. The major components of deferred tax assets and liabilities are as follows as of the dates indicated (in thousands):

	December 31,	
	2017	2018
Deferred tax assets		
Net operating loss carryforwards	$ 27,438	$ 31,031
Research and development tax credits	7,199	10,874
Fixed assets	140	–
Accruals and reserves	1,520	12,612
Other	125	1,616
Total deferred tax assets	36,422	56,133
Valuation allowance	(36,422)	(55,673)
Net deferred tax assets	–	460
Deferred tax liabilities		
Fixed assets	–	(460)
Net deferred taxes	$ –	$ –

As of December 31, 2017 and 2018, the Company maintained a full valuation allowance on its net deferred tax assets. The deferred tax assets predominantly relate to operating losses and tax credits. The valuation allowance was determined in accordance with the provisions of ASC 740, *Accounting for Income Taxes*, which requires an assessment of both positive and negative evidence when determining whether it is more likely than not that deferred tax assets are recoverable. Such assessment is required on a jurisdiction-by-jurisdiction basis. The Company's history of cumulative losses, along with expected future U.S. losses, required that a full valuation allowance be recorded against all net deferred tax assets. The Company intends to maintain a full valuation allowance on net deferred tax assets until sufficient positive evidence exists to support a reversal of the valuation allowance. The valuation allowance increased by $19.3 million and decreased by $5.2 million for the years ended December 31, 2018 and 2017. The increase in the valuation allowance in the year ended

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December 31, 2018 primarily related to federal net operating losses ("NOLs") and accruals recorded for book purposes which are deductible for tax purposes when paid. The decrease in the valuation allowance in the year ended December 31, 2017 was primarily related to the change in the statutory tax rate as a result of tax reform.

As of December 31, 2018, the Company had federal NOLs carryforwards of approximately $116.1 million and federal tax credit carryforwards of approximately $8.3 million. The federal NOL carryforwards generated during and after fiscal 2018 totaling $5.5 million are carried forward indefinitely, while all others, along with the federal tax credit carryforwards, expire in years beginning in 2032. As of December 31, 2018, the Company had state net operating loss carryforwards of approximately $93.5 million, which begin to expire in 2032. In addition, the Company had state tax credit carryforwards of approximately $7.9 million, which do not expire.

The federal and state net operating losses and credit carryforwards are subject to change of ownership limitations provided by the Internal Revenue Code and similar state provisions. In general, if the Company experiences a greater than 50 percentage point aggregate change in ownership over a 3-year period (a "Section 382 ownership change"), utilization of its pre-change NOL and credit carryforwards are subject to an annual limitation. The Company completed a study in early 2019 to determine whether an ownership change had occurred and determined at that time that an ownership change occurred in 2013. As a result, the Company's net operating losses generated through November 1, 2013 may be subject to limitation under Section 382 of the Code. The amount of pre-change loss carryforwards which may be subject to this limitation is $4.8 million. Such limitations may result in expiration of a portion of the carryforwards before utilization. Depending on the timing and amount of any future taxable income, the Company may be limited as to the amount of carryforwards that can be utilized. The Company does not believe these limitations will cause a material amount of its federal credit carryforwards to expire prior to utilization. The ability of the Company to use its remaining NOL and credit carryforwards may be further limited as a result of future changes in its stock ownership.

The total balance of unrecognized gross tax benefits for the years ended December 31, 2017 and 2018 resulting primarily from research and development tax credits claimed on the Company's annual tax returns were as follows (in thousands):

	2017	2018
Unrecognized tax benefits at beginning of year	$1,859	$2,692
Additions based on prior year tax provisions	–	118
Additions based on current year tax provisions	833	1,359
Unrecognized tax benefits at end of year	$2,692	$4,169

The Company has not been audited by the Internal Revenue Service or any state income or franchise tax agency. As of December 31, 2018, its federal returns for the years ended 2012 through the current period and state returns for the years ended 2012 through the current period are still open to examination. In addition, all of the net operating losses and research and development credit carry-forwards that may be used in future years are still subject to inquiry given that the statute of limitation for these items would begin in the year of the utilization. The Company does not expect its unrecognized tax benefits to change significantly over the next 12 months.

No liability related to uncertain tax positions has been recorded in the Company's consolidated financial statements due to the fact that such liabilities have been netted against deferred attribute carryovers.

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The Company maintains undistributed earnings overseas as of December 31, 2018. At this time, the Company believes the funds held by all non-US subsidiaries will be permanently reinvested outside of the U.S. However, if these funds were repatriated to the U.S. or used for U.S. operations the Company may be subject to withholding taxes in the foreign countries. As a result of tax reform, the Company's unrepatriated earnings are no longer subject to income tax in the U.S. when distributed.

The Tax Cuts and Jobs Act (the "Tax Act"), was enacted on December 22, 2017, which reduced the U.S. federal corporate tax rate from 35% to 21%, among other changes, effective January 1, 2018. The Company's accounting for the elements of the Tax Act is completed and resulted in $21.9 million reduction in its net deferred tax assets as of December 31, 2017 to reflect the new statutory rate. The rate adjustment to the deferred tax assets was fully offset by a decrease in the valuation allowance, resulting in no rate impact to the Company. There were no changes from the original amount booked as of December 31, 2017.

The Tax Act created a new requirement that global intangible low-taxed income ("GILTI") earned by the Company's foreign subsidiaries must be included in gross U.S. taxable income. While the Tax Act provides for a modified territorial tax system, beginning in 2018, GILTI provisions will be applied providing an incremental tax on low taxed foreign income. The GILTI provisions require the Company to include in its U.S. income tax return foreign subsidiary earnings in excess of an allowable return on the foreign subsidiary's tangible assets. During 2018, the Company made an accounting policy election to treat taxes related to GILTI as a current period expense when incurred.

7. Commitments and Contingencies

Indemnification

From time to time, the Company has entered into indemnification provisions under certain agreements in the ordinary course of business, typically with business partners, customers and suppliers. Pursuant to these agreements, the Company may indemnify, hold harmless and agree to reimburse the indemnified parties on a case-by-case basis for losses suffered or incurred by the indemnified parties in connection with any patent or other intellectual property infringement claim by any third party with respect to the Company's products. The Company maintains product liability insurance coverage that would generally enable it to recover a portion of the amounts paid. The Company has also agreed to indemnify its directors and executive officers for costs associated with any fees, expenses, judgments, fines and settlement amounts incurred by them in any action or proceeding to which any of them are, or are threatened to be, made a party by reason of their service as a director or officer (see "*—Litigation*" below). The Company maintains director and officer insurance coverage that would generally enable it to recover a portion of the amounts paid. The Company also may be subject to indemnification obligations by law with respect to the actions of its employees under certain circumstances and in certain jurisdictions.

Non-cancelable Purchase Commitments

The Company's contract manufacturer makes advance purchases of components based on the instrument unit forecasts and purchase orders placed by the Company. To the extent these components are purchased by the contract manufacturer on the Company's behalf and cannot be used by their other customers, the Company is obligated to purchase these components. In addition, certain supplier agreements require that the Company make minimum annual purchases under the agreements which are not significant. To date, the Company has met the minimum purchase commitments.

As of December 31, 2018, the Company has entered into non-cancelable arrangements for subscription software services under which the Company has an obligation to make payments aggregating to $1.7 million over the next three years.

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Notes to Consolidated Financial Statements—(Continued)

Intellectual Property Licensing

In July 2018, the Company and The Board of Trustees of the Leland Stanford Junior University ("Stanford") entered into a license agreement pursuant to which the Company was granted an exclusive license to ATAC-seq. As the Company receives revenue related to products covered by these licenses, the Company is required to pay Stanford a low single-digit royalty percentage based on the net revenue of certain ATAC-seq products during the applicable term of the licensed patents.

In September 2013, the Company and the President and Fellows of Harvard College ("Harvard") entered into a license agreement pursuant to which the Company was granted a license to certain intellectual property from Harvard. The Company is required to pay Harvard a low single-digit royalty percentage based on the net revenue of certain products covered by certain licensed patents during their applicable term.

In November 2018, the Company and Prognosys Biosciences, Inc. ("Prognosys") entered into a license agreement pursuant to which the Company was granted an exclusive license to certain intellectual property relating to spatial analysis from Prognosys. As part of the agreement, the Company fully expensed total purchase consideration of $3.3 million comprised of cash consideration and shares of the Company's Historical Class B common stock.

The minimum commitments related to the above license arrangements aggregate to $5.0 million to be paid over the next 16 years.

Lease Obligations

The Company leases its facilities under noncancelable lease agreements. Certain of these arrangements have free rent, escalating rent payment provisions and tenant allowances. Under such arrangements, the Company recognizes rent expense on a straight-line basis over the noncancelable lease term and records the difference between cash rent payments and the recognition of rent expense as a deferred rent liability within other current liabilities (current portion) and other liabilities (noncurrent portion).

In August 2018, the Company entered into a new lease agreement for office and laboratory space which consists of approximately 150,000 square feet located in Pleasanton, California. The lease term commenced in September 2018 and ends in September 2029. In connection with the lease, the Company maintains a letter of credit for the benefit of the landlord in the amount of $5.0 million, which is secured by restricted cash classified as noncurrent restricted cash on the consolidated balance sheets based on the term of the underlying lease.

Rent expense related to noncancelable operating leases was $1.0 million and $3.5 million for the years ended December 31, 2017 and 2018, respectively, and $0.8 million and $3.5 million for the six months ended June 30, 2018 and 2019 (unaudited), respectively.

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Future minimum lease payments under the leases for facilities as of December 31, 2018, are as follows (in thousands):

	Operating Leases
2019	$ 2,847
2020	5,974
2021	6,621
2022	5,860
2023 and thereafter	44,757
Total future minimum lease commitments	$66,059

Litigation

The Company is currently a defendant in the lawsuits and proceedings described below. Other than with respect to the 2015 Delaware Action, losses are not probable or estimable for the described below.

The 2015 Delaware Action

In February 2015, Raindance Technologies, Inc. (“Raindance”) and the University of Chicago filed suit against the Company in the U.S. District Court for the District of Delaware, accusing substantially all of the Company’s products of infringing certain patents. In May 2017, Bio-Rad Laboratories, Inc. (“Bio-Rad”) was substituted as the plaintiff following its acquisition of Raindance. In November 2018, a jury found that the accused products willfully infringed one or more of the asserted patents and awarded Bio-Rad approximately $24 million in damages through June 30, 2018. Post-trial, Bio-Rad moved for a permanent injunction, treble damages for willful infringement, attorneys’ fees, supplemental damages as well as pre- and post-judgment interest.

In response to the jury award, the Company established an accrual of $30.6 million as of December 31, 2018, which was recorded as an operating expense on the consolidated statement of operations for the year ended December 31, 2018. Additionally, beginning in the fourth quarter of 2018, the Company also began recording an accrual for estimated royalties to Bio-Rad as a cost of revenue on the consolidated statements of operations based on an estimated royalty rate of 15% of sales of the Company’s Chromium instruments operating its GEM microfluidic chips and associated consumables. As a result, the Company recorded $7.4 million of royalties for the fourth quarter of 2018. As of December 31, 2018, the Company recorded a total accrual of $38 million related to this matter which represented the jury award plus the Company’s estimate of additional damages for the period from June 30, 2018 to the trial date in November 2018 and the royalties accrued in the fourth quarter of 2018.

During the six months ended June 30, 2019 (unaudited), the Company recorded royalties of $15.9 million as a cost of revenue and an additional $1.4 million as an operating expense for estimated pre- and post-judgment interest for the period from January 1, 2019 through June 30, 2019. As of June 30, 2019 (unaudited), the Company has accrued a total of $55.3 million related to this matter. To date the Company has not made any payments related to the judgment or royalties.

In July 2019, the Court awarded supplemental damages for the period from June 30, 2018 through the end of the trial in November 2018 and established the interest rates for pre- and post-judgment interest, which when combined with the original award, resulted in a $35 million preliminary judgment in favor of Bio-Rad for

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Notes to Consolidated Financial Statements—(Continued)

damages through November 2018 and interest. The Company's accrual of $55.3 million as of June 30, 2019 is comprised of this judgment, along with the Company's estimate of additional royalties and interest for the period from November 2018 through June 30, 2019. In July 2019, the Court denied Bio-Rad's other post-trial requests such as attorneys' fees and enhanced damages for willful infringement.

In July 2019, the Court also granted Bio-Rad a permanent injunction against the Company's GEM microfluidic chips and associated consumables that were found to infringe the Bio-Rad patents, which constitute substantially all of the Company's product sales. However, under the injunction, the Company is permitted to continue to sell its GEM microfluidic chips and associated consumables for use with its historical installed base of instruments provided that the Company pay a royalty of 15% into escrow on the Company's net revenue related to such sales commencing after the injunction effective date. These decisions were entered as a final judgment against the Company in August 2019, with the injunction effective date anticipated to be in late August 2019.

As a result, the Company has asked the Court to allow it to post a bond for the amount of the final judgment of approximately $35 million. The Company expects it will be required to provide cash collateral related to the bond in an amount between $30 and $35 million. The cash collateral will be held until the conclusion of the Company's appeal and will not be available to the Company to fund working capital or other corporate expenditures.

In addition, the Company will be required to place cash into escrow each quarter of an amount equal to 15% of net revenue from sales of the Company's GEM microfluidic chips and associated consumables subsequent to the effective date of the injunction, which is anticipated to be in late August 2019. The amounts will be held in escrow until the conclusion of the Company's appeal.

The Company intends to appeal the verdict.

The ITC 1068 Action

On July 31, 2017, Bio-Rad and Lawrence Livermore National Security, LLC filed a complaint against the Company in the U.S. International Trade Commission ("ITC") pursuant to Section 337 of the Tariff Act of 1930, accusing substantially all of the Company's products of infringing certain asserted patents (the "ITC 1068 Action"). In September 2018, the judge found that the Company's GEM microfluidic chips infringe certain of the asserted patents, but also that the Company's gel bead manufacturing microfluidic chip and Next GEM microfluidic chip do not infringe any claim asserted against them. The judge recommended entry of an exclusion order preventing the Company from importing its GEM microfluidic chips and a cease and desist order that would prevent the Company from selling such imported chips. A Final Determination is expected to be issued in late September 2019, which is subject to a 60-day presidential review period before taking effect. The Company believes this proceeding is without merit and intends to vigorously defend itself.

The Northern District of California Action

On July 31, 2017, Bio-Rad and Lawrence Livermore National Security, LLC also filed suit against the Company in the U.S. District Court for the Northern District of California, alleging that substantially all of its products infringe certain patents in addition to the patents asserted in the ITC 1068 Action. The complaint seeks injunctive relief, unspecified monetary damages, costs and attorneys' fees. The Company believes that this lawsuit is without merit and intends to vigorously defend itself.

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Notes to Consolidated Financial Statements—(Continued)

The Germany Action

On July 31, 2017, Bio-Rad filed suit against the Company in Germany in the Munich Regional Court alleging that the Company infringed a European patent. Bio-Rad dismissed this action in August 2018.

On February 13, 2018, Bio-Rad filed suit against the Company in Germany in the Munich Region Court alleging that its Chromium instruments, GEM microfluidic chips and certain accessories infringe a German utility model. Bio-Rad seeks unspecified damages and an injunction prohibiting sales of these products in Germany and requiring the Company to recall these products sold in Germany subsequent to February 11, 2018. The Company believes that this lawsuit is without merit and intends to vigorously defend itself.

The 2018 Delaware Action

On October 25, 2018, Bio-Rad filed suit against the Company in the U.S. District Court for the District of Delaware alleging that the Company infringed certain patents. Bio-Rad seeks injunctive relief, unspecified monetary damages, costs and attorneys' fees. The Company believes that this lawsuit is without merit and intends to vigorously defend itself.

The Becton Dickinson Action

On November 15, 2018, Becton, Dickinson and Company and Cellular Research, Inc. filed suit against the Company in the U.S. District Court for the District of Delaware, alleging that the Company infringed certain patents. Plaintiffs seek injunctive relief, unspecified monetary damages, costs and attorneys' fees. The Company believes that this lawsuit is without merit and intends to vigorously defend itself.

8. Capital Stock and Stockholders' Deficit

The Company's Amended and Restated Certificate of Incorporation authorizes it to issue 258,859,871 shares of capital stock consisting of 75,955,000 shares of Historical Class A common stock, 115,000,000 shares of Historical Class B common stock, and 67,904,871 shares of convertible preferred stock.

Convertible Preferred Stock

Convertible preferred stock authorized, issued and outstanding as of the date indicated below consisted of the following (in thousands, except share and per share data):

	As of December 31, 2017				
Series	Issue Price	Shares Authorized	Shares Issued and Outstanding	Liquidation Preference	Carrying Value
A-1	$0.85	5,523,394	5,523,394	$ 4,688	$ 5,882
A-2	$1.09	20,486,543	20,486,543	22,400	22,265
B	$3.27	16,972,477	16,972,477	55,500	55,415
C	$4.48	16,747,799	16,747,799	75,000	74,852
Total Convertible Preferred stock		59,730,213	59,730,213	$157,588	$158,414

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As of December 31, 2018 and June 30, 2019 (unaudited)

Series	Issue Price	Shares Authorized	Shares Issued and Outstanding	Liquidation Preference	Carrying Value
A-1	$ 0.85	5,523,394	5,523,394	$ 4,688	$ 5,882
A-2	$ 1.09	20,486,543	20,486,543	22,400	22,265
B	$ 3.27	16,972,477	16,972,477	55,500	55,415
C	$ 4.48	16,747,799	16,747,799	75,000	74,852
D	$ 9.57	5,224,658	5,224,658	50,000	49,878
D-1	$ 12.73	2,950,000	2,749,407	35,000	34,952
Total Convertible Preferred stock		67,904,871	67,704,278	$ 242,588	$ 243,244

Redemption

The holders of the Company's preferred stock have no voluntary rights to redeem shares. A liquidation or winding up of the Company, a change in control, or a sale of substantially all of the Company's assets would constitute a redemption event which may be outside of the Company's control. Accordingly, these shares are considered contingently redeemable and are classified as temporary equity on the consolidated balance sheets. The carrying value of the convertible preferred stock has not been adjusted to its redemption value because redemption was not probable as of the balance sheet dates presented. The carrying value of the convertible preferred stock will be adjusted to its redemption value if redemption becomes probable in the future.

Conversion

Each share of preferred stock is convertible at the right and option of its holder into such number of fully paid and nonassessable shares of Historical Class A common stock as is determined by dividing the original issue price per share by the applicable conversion price per share on the date of conversion. As of December 31, 2017 and 2018 and June 30, 2019 (unaudited), the conversion prices per share for all series of convertible preferred stock were equal to the original issue prices and the rate at which each share would convert into Historical Class A common stock was one-for-one.

In the event that the Company, at any time after the original issuance date of any series of preferred stock, issues additional shares of common stock (including convertible securities) without consideration or for consideration per share that is less than the conversion price of a particular series of preferred stock in effect on the date of and immediately prior to such issuance, then and in such event, the conversion price of that series shall be reduced, concurrently with such issuance (down round conversion provision).

Each share of preferred stock will automatically convert into a fully paid, nonassessable share of Historical Class A common stock at the then-effective conversion rate for such share (i) upon the closing of a firm commitment, underwritten initial public offering of the Company's common stock at an aggregate offering price of not less than $50.0 million; or (ii) upon the receipt by the Company of a written request for such conversion from (A) the holders of a majority of the then outstanding shares of convertible preferred stock (voting together as a single class on an as-converted basis), (B) the holders of a majority of the then outstanding shares of Series C convertible preferred stock (voting as a separate class) and (C) the holders of two-thirds of the then outstanding shares of Series D convertible preferred stock and Series D-1 convertible preferred stock (voting together as a separate class).

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Notes to Consolidated Financial Statements—(Continued)

Liquidation Preference

Each series of the Company's convertible preferred stock is contingently redeemable upon the occurrence of a liquidation transaction as defined in the Company's amended and restated certificate of incorporation. In the event of a liquidation, dissolution or winding up of the Company, either voluntary or involuntary, the holders of Series D and D-1 convertible preferred stock shall be entitled to receive, prior and in preference to any distribution of any of the Company's assets or funds to Series C convertible preferred stock, Series B convertible preferred stock, Series A-2 convertible preferred stock, Series A-1 convertible preferred stock, and Historical common stock, an amount per share equal to $9.57 per share for each outstanding share of Series D convertible preferred stock and $12.73 per share for each outstanding share of Series D-1 convertible preferred stock, plus any declared but unpaid dividends on such shares. The holders of Series C convertible preferred stock shall be entitled to receive, prior and in preference to any distribution of any of the Company's assets or funds to Series B convertible preferred stock, Series A-2 convertible preferred stock, Series A-1 convertible preferred stock, and Historical common stock, an amount per share equal to $4.4782 per share for each outstanding share of Series C convertible preferred stock, plus any declared but unpaid dividends on such shares. The holders of Series B convertible preferred stock shall be entitled to receive, prior and in preference to any distribution of any of the Company's assets or funds to Series A-2 convertible preferred stock, Series A-1 convertible preferred stock, and Historical common stock, an amount per share equal to $3.27 per share for each outstanding share of Series B convertible preferred stock, plus any declared but unpaid dividends on such shares. The holders of Series A-1 and Series A-2 convertible preferred stock shall be entitled to receive, prior and in preference to any distribution of any of the Company's assets or funds to Historical common stock, an amount per share equal to $0.8488 per share for each outstanding share of Series A-1 convertible preferred stock and $1.0934 per share for each outstanding share of Series A-2 convertible preferred stock, plus any declared but unpaid dividends on such shares. After liquidation preferences to Series A-1, Series A-2, Series B, Series C, Series D and Series D-1 convertible preferred stockholders have been paid, the remaining assets of the Company shall be distributed among the holders of Historical common stock. If, upon liquidation, the assets of the Company legally available for distribution or any other type of consideration payable to the stockholders are insufficient to permit the distribution or payment to such holders of the full amounts specified in the Company's amended and restated certificate of incorporation, then the entire assets of the Company legally available for distribution or consideration would be payable to the holders of preferred stock in proportion to the full amounts, with equal priority and pro rata among the holders, of the preferred stock in proportion to the full amounts they would otherwise be entitled to receive.

Voting Rights

Each share of Series A-1, A-2, B, C, D and D-1 convertible preferred stock has the right to vote on an as-converted to Historical Class A common stock basis, which equates to 100 votes for each share of Historical common stock into which such preferred stock could be converted, and with respect to such vote, such holder will have full voting rights and powers equal to the holders of Historical common stock.

Dividends

Each stockholder of Series A-1, A-2, B, C, D and D-1 convertible preferred stock is entitled to receive dividends at the rate of $0.068, $0.087, $0.262, $0.358, $0.7656 and $1.0184 per share, respectively, per annum, when and if declared by the Board of Directors, in accordance with the payment preference order set forth in *Liquidation Preference* discussed above, prior to payment of dividends on Historical common stock. Dividends are noncumulative and no dividends have been declared to date.

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Historical Common Stock

Historical common stock issued and outstanding was 12,883,930, 14,549,801, and 16,145,382 as of December 31, 2017 and 2018 and June 30, 2019 (unaudited), respectively. Historical Class A was 8,050,000 as of December 31, 2017 and 2018, and June 30, 2019 (unaudited). Historical Class B was 4,833,930 and 6,499,801 as of December 31, 2017 and 2018, respectively, and 8,095,382 as of June 30, 2019 (unaudited). The Company's Historical Class A common stock and Historical Class B common stock have a par value of $0.00001 per share. Each share of Historical Class A common stock has the right to 100 votes and each share of Historical Class B common stock has the right to one vote per share. All other rights and privileges of Historical Class A and Historical Class B common stock are equivalent. Historical Class A common shares are convertible to Historical Class B at any time upon written notification and all Historical Class A will convert upon the date specified by vote or written consent of the holders of a majority of the then outstanding Historical Class A common stock, voting together as a single class. The holders of common stock are also entitled to receive dividends whenever funds are legally available and when declared by the Board of Directors, subject to the prior rights of holders of all classes of stock outstanding having priority rights as to dividends.

Warrants to Purchase Common Stock

In connection with certain debt arrangements, the Company issued the lender warrants to purchase shares of Historical Class B common stock which have an exercise term of 10 years. The outstanding warrants as of December 31, 2018 and June 30, 2019 (unaudited) were as follows:

Issue Date	Exercise Price Per Share	Number of Shares
April 2014	$ 0.21	43,750
September 2015	$ 0.88	18,349
September 2016	$ 1.07	79,000
February 2018	$ 1.62	125,000

The Company's common stock warrants were recorded to additional paid-in capital at fair value as of the date of issuance using the Black-Scholes valuation model. The fair value of the warrants for 125,000 shares of Historical Class B common stock issued in February 2018 was estimated at $150,000 using the following assumptions: fair value of shares of Historical Class B common stock on the issuance date of $1.62, risk-free interest rate of 1.54%, contractual term of 10 years, no anticipated dividends, and estimated volatility of 68%. The initial amount allocated to the warrants are accounted for as a discount to the related debt and amortized to interest expense over the loan term using the effective interest method.

9. Equity Incentive Plans

2012 Stock Plan

In October 2012, the Company adopted the 10x Genomics, Inc. 2012 Stock Plan (the "2012 Stock Plan") which has been amended in subsequent years for increases in authorized shares. The 2012 Stock Plan allows for the issuance of incentive stock options ("ISOs"), non-statutory stock options ("NSOs") or restricted shares. ISOs may be granted only to the Company's employees (including officers and directors who are also considered employees). NSOs and restricted shares may be granted to the Company's employees and service providers. Unvested options that were not exercised as of an employee's termination date revert to the 2012 Stock Plan. As of December 31, 2018 and June 30, 2019 (unaudited), the number of shares of Historical Class B common stock issuable under the 2012 Stock Plan is 24,782,088. The 2012 Stock Plan does not allow for the issuance of shares of Historical Class A common stock.

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

Options under the 2012 Stock Plan have a contractual term of 10 years. In the case of an ISO granted to an optionee who, at the time the option is granted, owns stock representing more than 10% of the voting power of all classes of stock of the Company, the term of the option is five years from the date of grant, or such shorter term as may be provided in the option agreement.

The exercise price of an ISO and NSO shall not be less than 100% of the estimated fair value of the shares on the date of grant, and the exercise price of an ISO granted to a 10% stockholder shall not be less than 110% of the estimated fair value of the shares on the date of grant. Stock options granted generally vest over a four-year period.

A summary of the Company's stock option activity from December 31, 2017 to June 30, 2019, under the 2012 Stock Plan is as follows:

	Outstanding Options	Weighted-Average Exercise Price	Weighted-Average Remaining Terms (Years)	Aggregate Intrinsic Value
Balance as of December 31, 2017	11,999,004	$0.99		
Granted	4,198,573	$4.21		
Exercised	(1,508,762)	$1.17		
Cancelled	(424,439)	$1.22		
Balance as of December 31, 2018	14,264,376	$1.91	8.2	$ 71,902,234
Granted (unaudited)	3,283,297	$9.91		
Exercised (unaudited)	(1,595,581)	$1.46		
Cancelled (unaudited)	(317,910)	$3.37		
Balance as of June 30, 2019 (unaudited)	15,634,182	$3.61	8.2	$351,527,047
Vested and exercisable as of December 31, 2018	5,614,120	$0.97	7.2	$ 33,595,289
Unvested and exercisable as of December 31, 2018	897,397	$1.18	8.3	$ 5,182,366
Vested and exercisable as of June 30, 2019 (unaudited)	6,012,392	$1.31	7.1	$148,964,420
Unvested and exercisable as of June 30, 2019 (unaudited)	1,555,939	$4.32	8.7	$ 33,879,218

The weighted-average grant date fair value of options granted during the years ended December 31, 2017 and 2018 was $0.66 and $2.04 per share, respectively, and was $1.31 and $10.22 per share for the six months ended June 30, 2018 and 2019 (unaudited), respectively. The total intrinsic value of stock options exercised was $0.8 million and $3.3 million during the years ended December 31, 2017 and 2018, respectively, and $0.9 million and $11.9 million during the six months ended June 30, 2018 and 2019 (unaudited), respectively. As of December 31, 2018 and June 30, 2019 (unaudited), the total unrecognized stock-based compensation related to stock options was $10.7 million and $39.2 million, respectively, which will be recognized over a weighted-average period of approximately 3.1 years and 3.4 years, respectively.

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

Early Exercise of Options

Stock options granted under the 2012 Stock Plan provide for certain employee and director option holders the right to exercise unvested options in exchange for restricted shares of Historical Class B common stock which are subject to repurchase by the Company at the original issuance price in the event the optionee's employment is terminated either voluntarily or involuntarily prior to the applicable vesting date. The consideration received for the early exercised options is recorded as a liability on the consolidated balance sheets and reclassified to stockholders' deficit as the shares vest. As of December 31, 2017 and 2018 and June 30, 2019 (unaudited), the total repurchase liability related to the unvested early exercised options was $317,000, $652,000 and $825,000, respectively, which is included in other current and noncurrent liabilities on the consolidated balance sheets. A summary of these restricted shares issued under the 2012 Stock Plan is as follows:

	Number of Shares	Weighted-Average Exercise Price
Outstanding and unvested as of December 31, 2017	301,372	$ 1.05
Exercised	124,000	$ 4.76
Vested	(192,622)	$ 1.33
Outstanding and unvested as of December 31, 2018	232,750	$ 2.80
Exercised (unaudited)	29,000	$ 11.48
Vested (unaudited)	(63,500)	$ 2.52
Outstanding and unvested as of June 30, 2019 (unaudited)	198,250	$ 4.16

The fair value of each employee option grant was estimated on the date of grant using the following assumptions for the periods indicated:

	Year Ended December 31,		Six Months Ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Expected volatility	45% – 48%	45% – 46%	45%	45%
Risk-free interest rate	1.9% – 2.3%	2.7% – 3.1%	2.7% – 2.8%	2.2% – 2.5%
Expected term	4.2 – 6.5 years	5.3 – 6.5 years	5.6 – 6.1 years	5.0 – 6.9 years
Expected dividend	–	–	–	–

Stock-Based Compensation for Nonemployees

The Company granted stock options to consultants in exchange for services performed for the Company. The stock options vest over terms ranging from 12 to 48 months. The stock options generally vest over the contractual period of the consulting arrangement and, therefore, the Company will revalue the options periodically and record additional compensation expense related to these options over the remaining vesting period.

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

During the years ended December 31, 2017 and 2018 compensation expense related to these options was $33,000, $70,000, respectively, and $10,000 and $211,000, and during the months ended June 30, 2018 and 2019 (unaudited), respectively.

Stock-Based Compensation Expense

The following table sets forth the total stock-based compensation expense included in the Company's consolidated statements of operations and comprehensive loss for the periods indicated (in thousands):

	Year Ended December 31,		Six Months Ended June 30, 2018	
	2017	2018	2018	2019
			(unaudited)	
Cost of revenue	$ 44	$ 85	$ 36	$ 90
Research and development	801	1,030	440	1,798
Selling, general and administrative	816	1,543	530	2,496
Total stock-based compensation expense	$1,661	$2,658	$1,006	$4,384

10. Employee Benefit Plans

The Company has made available to all full-time United States employees a 401(k) retirement savings plan. Under this plan, employee and employer contributions and accumulated plan earnings qualify for favorable tax treatment under Section 401(k) of the Internal Revenue Code. The Company has not contributed to the plan.

11. Net Loss Per Share

The following table sets forth the computation of basic and diluted net loss per share for the periods indicated (in thousands, except share and per share data):

	Year Ended December 31,		Six Months Ended June 30,	
	2017	2018	2018	2019
			(unaudited)	
Net loss attributable to Historical common stockholders	$ (18,762)	$ (112,485)	$ (21,616)	$ (14,514)
Weighted-average shares used in computing net loss per share, basic and diluted	11,587,751	13,392,273	12,985,535	15,187,258
Net loss per share attributable to Historical common stockholders, basic and diluted	$ (1.62)	$ (8.40)	$ (1.66)	$ (0.96)

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10x Genomics, Inc.

Notes to Consolidated Financial Statements—(Continued)

The following outstanding shares of potentially dilutive securities were excluded from the computation of diluted net loss per share because including them would have had an anti-dilutive effect for the dates indicated:

	As of December 31,		As of June 30,	
	2017	2018	2018	2019
			(unaudited)	
Convertible preferred stock (on an if-converted basis)	59,730,213	67,704,278	64,954,871	67,704,278
Stock options to purchase Historical Class B common stock	11,949,004	14,264,376	12,402,386	15,634,182
Shares subject to repurchase	301,372	232,750	277,750	198,250
Common stock warrants to purchase Historical Class B common stock	141,099	266,099	266,099	266,099
Total	72,121,688	82,467,503	77,901,106	83,802,809

Unaudited Pro Forma Net Loss Per Share

The following table presents the calculation of pro forma basic and diluted net loss per share attributable to Historical common stockholders for the period indicated (in thousands, except share and per share data):

	Year Ended December 31, 2018	Six Months Ended June 30, 2019 (unaudited)
Numerator		
Net loss attributable to Historical common stockholders	$ (112,485)	$ (14,514)
Denominator		
Weighted-average shares used in computing net loss per share, basic and diluted	13,392,273	15,187,258
Pro forma adjustment to reflect the assumed conversion of the convertible preferred stock	64,102,719	67,704,278
Weighted-average shares used in computing pro forma net loss per share attributable to Historical common stockholders, basic and diluted	77,494,992	82,891,536
Pro forma net loss per share attributable to Historical common stockholders		
Basic and diluted	$ (1.45)	$ (0.18)

12. Subsequent Events

The Company evaluated events subsequent to December 31, 2018 through May 10, 2019, the date at which the consolidated financial statements were available to be issued.

13. Subsequent Events (unaudited)

The Company evaluated events subsequent to December 31, 2018 through August 19, 2019, which is the date the unaudited financial statements were issued.

In August 2019, the Court entered a final judgment in the amount of approximately $35 million in favor of Bio-Rad related to the Delaware Action (see Note 7).

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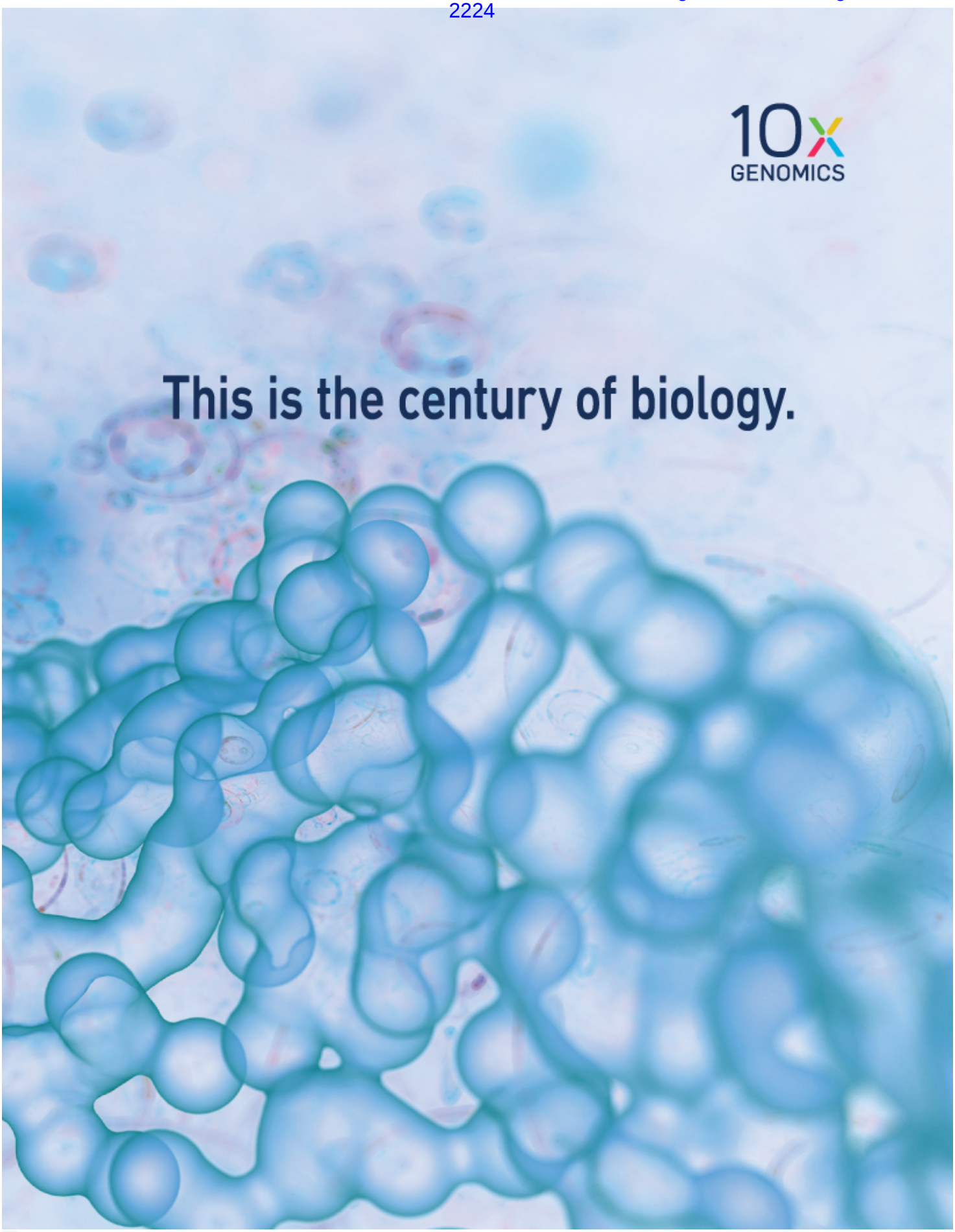
10x
GENOMICS
This is the century of biology.

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shares

Class A common stock

Prospectus

J.P. Morgan **Goldman Sachs & Co. LLC** **BofA Merrill Lynch**

Cowen

, 2019

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Part II

Information not required in prospectus

Item 13. Other expenses of issuance and distribution

The following table sets forth all costs and expenses, other than underwriting discounts and commissions, payable by us in connection with the sale of the Class A common stock being registered. All amounts shown are estimates except for the Securities and Exchange Commission (the "SEC") registration fee, the Financial Industry Regulatory Authority ("FINRA") filing fee and the Nasdaq Global Select Market ("Nasdaq") listing fee.

	Amount paid or to be paid
SEC registration fee	$ 12,120
FINRA filing fee	15,500
Nasdaq listing fee	*
Transfer agent's fees	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Blue sky fees and expenses	*
Miscellaneous	*
Total	$ *

* To be completed by amendment.

Item 14. Indemnification of directors and officers

Section 145 of the Delaware General Corporation Law provides that a corporation may indemnify directors and officers as well as other employees and individuals against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with any threatened, pending, or completed actions, suits or proceedings in which such person is made a party by reason of such person being or having been a director, officer, employee or agent to the registrant. The Delaware General Corporation Law provides that Section 145 is not exclusive of other rights to which those seeking indemnification may be entitled under any bylaw, agreement, vote of stockholders or disinterested directors or otherwise. Section 7 of the registrant's amended and restated bylaws provides for indemnification by the registrant of its directors, officers and employees to the fullest extent permitted by the Delaware General Corporation Law. The registrant has entered into indemnification agreements with each of its current directors, executive officers and certain other officers to provide these directors and officers additional contractual assurances regarding the scope of the indemnification set forth in the registrant's amended and restated certificate of incorporation and amended and restated bylaws and to provide additional procedural protections. There is no pending litigation or proceeding involving a director or executive officer of the registrant for which indemnification is sought.

Section 102(b)(7) of the Delaware General Corporation Law permits a corporation to provide in its certificate of incorporation that a director of the corporation shall not be personally liable to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to the corporation or its stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) for unlawful payments of

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dividends or unlawful stock repurchases, redemptions, or other distributions, or (iv) for any transaction from which the director derived an improper personal benefit. The registrant's amended and restated certificate of incorporation provides for such limitation of liability.

The registrant maintains policies of insurance under which coverage is provided to its directors and officers against loss rising from claims made by reason of breach of duty or other wrongful act.

The proposed form of underwriting agreement filed as Exhibit 1.1 to this registration statement provides for indemnification of directors and officers of the registrant by the underwriters against certain liabilities.

Item 15. Recent sales of unregistered securities

From January 1, 2016 through August 14, 2019, the registrant has issued and sold the following securities without registration under the Securities Act of 1933:

- 16,747,799 shares of Series C Convertible Preferred Stock to 25 accredited investors at a price of $4.48 per share, for aggregate proceeds of approximately $74,999,994;
- 5,224,658 shares of Series D Convertible Preferred Stock to 20 accredited investors at a price of $9.57 per share, for aggregate proceeds of approximately $49,999,977;
- 2,749,407 shares of Series D-1 Convertible Preferred Stock to 6 accredited investors at a price of $12.73 per share, for aggregate proceeds of approximately $34,999,951;
- Stock options to employees, directors, consultants and other service providers of the Registrant to purchase an aggregate of 15,357,125 shares of Historical Class B common stock under the Registrant's 2012 Stock Plan, with per share exercise prices ranging from $1.07 to $30.00;
- 5,993,292 shares of Historical Class B common stock to employees, directors, consultants and other service providers of the Registrant upon the exercise of stock options granted under the Registrant's 2012 Stock Plan, with per share purchase prices ranging from $0.21 to $11.48;
- 157,109 shares of Historical Class B common stock for in-process research and development; and
- Warrants to purchase an aggregate of 79,000 shares of our Historical Class B common stock, exercisable for a period of 10 years at an exercise price of $1.07 per share, to a lender in connection with our entry into a Loan and Security Agreement with Silicon Valley Bank in 2016 and an aggregate of 125,000 shares of our Historical Class B common stock, exercisable for a period of 10 years at an exercise price of $1.62 per share, to a lender in connection with the entry into the Second Amended and Restated Loan and Security Agreement with Silicon Valley Bank in 2018.

None of the foregoing transactions involved any underwriters, underwriting discounts or commissions, or any public offering. Unless otherwise stated, the sales of the above securities were deemed to be exempt from registration under the Securities Act in reliance upon Section 4(a)(2) of the Securities Act (or Regulation D or Regulation S promulgated thereunder) or Rule 701 promulgated under Section 3(b) of the Securities Act as transactions by an issuer not involving any public offering or pursuant to benefit plans and contracts relating to compensation as provided under Rule 701. The recipients of the securities in each of these transactions represented their intentions to acquire the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were placed upon the stock certificates issued in these transactions.

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Item 16. Exhibits and financial statement schedules

See the Exhibit Index immediately following the signature page for a list of exhibits filed as part of this registration statement, which Exhibit Index is incorporated herein by reference.

Item 17. Undertakings

(a) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the registrant pursuant to the provisions referenced in Item 14 of this registration statement, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer, or controlling person of the registrant in the successful defense of any action, suit, or proceeding) is asserted by such director, officer, or controlling person in connection with the securities being registered hereunder, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question of whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

(b) The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

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Exhibit index

Exhibit Number	Description
1.1†	Form of Underwriting Agreement.
3.1	Seventh Amended and Restated Certificate of Incorporation of the Registrant, as currently in effect.
3.2	Form of Amended and Restated Certificate of Incorporation of the Registrant, to be in effect immediately prior to the completion of this offering.
3.3	Amended and Restated Bylaws of the Registrant, as currently in effect.
3.4	Form of Amended and Restated Bylaws of the Registrant, to be in effect immediately prior to the completion of this offering.
4.1	Amended and Restated Investors' Rights Agreement, dated as of October 18, 2018, by and among the Registrant and the other parties thereto.
4.2	Form of Stock Certificate for Class A Common Stock of the Registrant.
5.1†	Opinion of Simpson Thacher & Bartlett LLP.
10.1	Second Amended and Restated Loan and Security Agreement, dated as of February 9, 2018, by and between the Registrant and Silicon Valley Bank.
10.2	First Amendment to Second Amended and Restated Loan and Security Agreement, dated June 26, 2019, by and between the Registrant and Silicon Valley Bank.
10.3	Lease Agreement, dated August 2, 2018, between the Registrant and 6200 Stoneridge Mall Road Investors LLC.
10.4	First Amendment to Lease Agreement, dated May 20, 2019, between the Registrant and 6200 Stoneridge Mall Road Investors LLC.
10.5*	License Agreement, dated September 26, 2013, between the Registrant and the President and Fellows of Harvard College.
10.6*	Amendment No. 1 to License Agreement, dated October 25, 2018, between the Registrant and President and Fellows of Harvard College.
10.7*	Exclusive (Equity) Agreement, dated October 15, 2015, between Epinomics, Inc. and The Board of Trustees of the Leland Stanford Junior University.
10.8	Amendment No. 1 to the License Agreement, dated February 1, 2017, between Epinomics and The Board of Trustees of the Leland Stanford Junior University.
10.9*	Amendment No. 2 to the License Agreement, dated July 27, 2018, between the Registrant and The Board of Trustees of the Leland Stanford Junior University.
10.10+	Amended and Restated 2012 Stock Plan and forms of award agreements thereunder.
10.11+	2019 Omnibus Incentive Plan and forms of award agreements thereunder, to be in effect upon the completion of this offering.
10.12+	2019 Employee Stock Purchase Plan, to be in effect upon the completion of this offering.
10.13+	Non-Employee Director Compensation Policy, to be in effect upon the completion of this offering.
10.14+	Employment Offer Letter by and between the Registrant and Eric S. Whitaker.
10.15+	Employment Offer Letter by and between the Registrant and Justin McAnear.
10.16+	Form of At-Will Employment, Confidential Information, Invention Assignment, and Arbitration Agreement.

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Exhibit Number	Description
23.1†	Consent of Simpson Thacher & Bartlett LLP (included in Exhibit 5.1).
23.2	Consent of Independent Registered Public Accounting Firm.
24.1	Power of Attorney (included in the signature page to this Registration Statement).

† To be filed by amendment

+ Management contract or compensatory plan or arrangement.

* Portions of this exhibit have been omitted pursuant to Item 601 of Regulation S-K promulgated under the Securities Act because the information (i) is not material and (ii) would be competitively harmful if publicly disclosed.

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Signatures

Pursuant to the requirements of the Securities Act of 1933, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Pleasanton, State of California, on the nineteenth day of August, 2019.

10x Genomics, Inc.

By: /s/ Serge Saxonov
Name: Serge Saxonov
Title: Chief Executive Officer and Director

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Serge Saxonov, Justin J. McAnear and Eric S. Whitaker, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place, and stead, in any and all capacities, to sign any and all amendments (including post-effective amendments) to this registration statement and any and all additional registration statements pursuant to Rule 462(b) of the Securities Act of 1933, and to file the same, with all exhibits thereto, and all other documents in connection therewith, with the Securities and Exchange Commission, granting unto each said attorney-in-fact and agents full power and authority to do and perform each and every act in person, hereby ratifying and confirming all that said attorneys-in-fact and agents or either of them or their or his or her substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Serge Saxonov Serge Saxonov	Chief Executive Officer and Director (Principal Executive Officer)	August 19, 2019
/s/ Benjamin J. Hindson Benjamin J. Hindson	President and Director	August 19, 2019
/s/ Justin J. McAnear Justin J. McAnear	Chief Financial Officer (Principal Accounting and Financial Officer)	August 19, 2019
/s/ John R. Stuelpnagel John R. Stuelpnagel	Chairman of the board of directors	August 19, 2019
/s/ Paul A. Conley Paul A. Conley	Director	August 19, 2019
/s/ Sridhar Kosaraju Sridhar Kosaraju	Director	August 19, 2019
/s/ Mathai Mammen Mathai Mammen	Director	August 19, 2019
/s/ Bryan E. Roberts Bryan E. Roberts	Director	August 19, 2019
/s/ Shehnaaz Suliman Shehnaaz Suliman	Director	August 19, 2019